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The OIL and GAS JOURNAL

PRODUCING REFINING ENGINEERING MARKETING

Published Every Thursday TULSA, OKLAHOMA, MAY 30, 19[illegible] $6.00 a Year

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PERFECT
CO-ORDINATION

THE Moore
Champion
DERRICK

Advertisers' Index on Page 25 Table of Contents on Page 26

The Drilling *Valve*

The Pipe Line *Valve*

The Refinery *Valve*

Everywhere— Chapman *Valves*

Throughout every phase of the industry—production, transportation, refining—CHAPMAN VALVES are in evidence everywhere. Practical oil men prefer them.

Extremely high temperatures and pressures demand valves of CHAPMAN Chrome Nickel Steel (stronger than forged steel). Depend upon them where conditions are most difficult.

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NITRALLOY, the new valve mounting

can now be obtained exclusively in CHAPMAN iron and steel body valves. Hard enough to scratch glass, immune to high temperature effects, this material gives to valves many times their former service life. Write to us or to our nearest distributor for full details.

THE
KAY
GATE VALVE
Recommended for
125 LBS.
Working Steam Pressure

EVERY WALWORTH VALVE
IS INDIVIDUALLY TESTED

The "Kay" Brass Gate Valves are of the double disc parallel seat design, and are so constructed that the discs do not bear on the seats in opening or closing. The discs are seated by a wedge which bears on the center of the discs. This wedge is brought into action by a lug on the bottom of the valve body just before the discs reach their lowest position. It is likewise released at the very instant of starting to open the valve. The discs are thus free from the seats while being opened or closed.

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Walworth Company, Limited, 620 Cathcart St., Montreal, P. Q.
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The Oil and Gas Journal, issued weekly by The Petroleum Publishing Company, 114-116 West Second Street, Tulsa, Oklahoma. Subscription price $6.00 a year; 15 cents a copy. Entered as second-class mail matter December 15, 1911, at the post office at Tulsa, Okla., under the Act of March 3, 1879.

"A Story of Steel and Oil" is a historical sketch of the Petroleum Industry. Write for your copy today.

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Let us send you this FREE BOOK

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This comprehensive new book describes in detail the development of the three Eagle Bearing Metals which have been scientifically designed to meet 95% of all bearing metal requirements.

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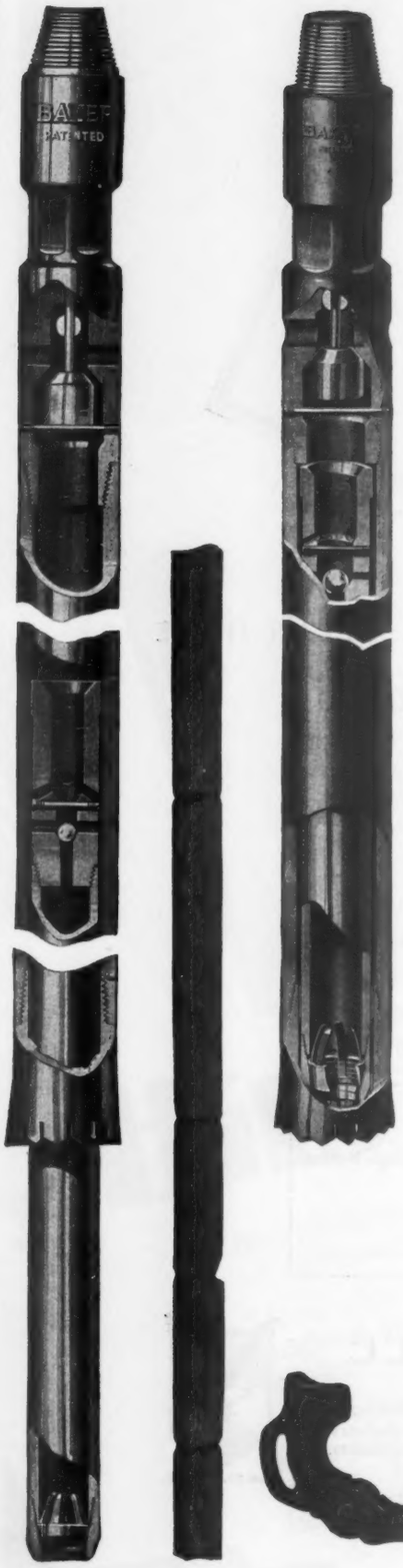
You Cannot Realize { *the simplicity* / *the speed* / *the benefit* } *of the BAKER Cable Tool Core Barrel—until you use one*



Any experienced cable tool driller can get good cores with the Baker Cable Tool Core Barrel. He does not need any previous coring experience. The Inner Core Retaining Tube sits on the formation, the Outer Drill Barrel makes the hole and the core passes up into the Retaining Tube.

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Write for literature giving complete data on the operation, construction and results of this remarkable tool.

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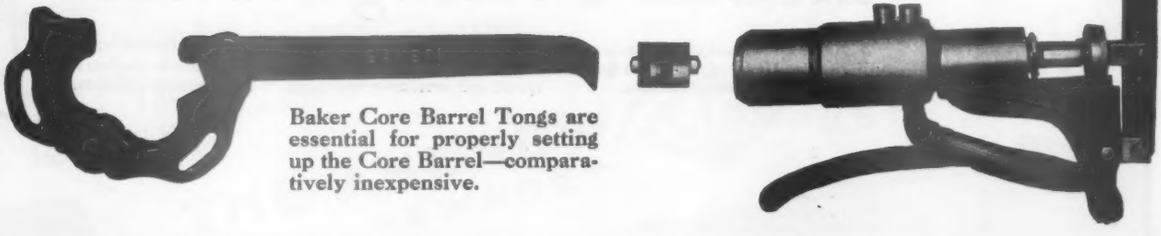
220 E. Brady St., Tulsa, Okla.; 2301 Commerce St., Houston, Texas

Baker Hydraulic Core Extractor—removes the tightest core from the Core Barrel without damage.



Baker Core Barrel Tongs are essential for properly setting up the Core Barrel—comparatively inexpensive.

Armored

Because there can be no truce in the bitter fight with corrosion, Charcoal Iron Boiler Tubes are well armored for the battle.

And the armor of Reading Tubes protects every inmost particle of the pure metal. Corrosion finds no loophole — rust is resisted at the surface — because of the filaments of protective silicious slag which are distributed so uniformly throughout the structure of the iron.

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Reading Charcoal Iron Boiler Tubes are furnished in sizes ranging from 1½" to 6" in diameter and may be obtained through the following distributors:

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READING
GENUINE CHARCOAL
IRON BOILER
TUBES

READING PIPE
CHARCOAL IRON BOILER TUBES

PATRICK
CARBON
for Diamond Core Drilling

Deepening Old Wells to New Production

INDICATIONS are that depths of 10,000 feet and more will not be unusual in oil drilling within the next few years.

In these deep drillings, the diamond core drill has no equal—for it is speedy, economical and sure.

With the diamond core drill, exploration drilling may be combined with production drilling, an exceedingly important factor where great depths are to be reached.

The diamond drill will penetrate the hardest formations economically. It will drill efficiently against tremendous pressure. It will produce greater footage per round trip into the hole. These are factors that contribute to the desirability of the diamond core drill in all deep drilling.

Costs in diamond core drilling depend upon the reliability of the black diamonds used. Patrick Carbon is accurately graded on drilling value and is dependable. It is the result of the long practical drilling experience of the Patrick staff, an organization engaged solely in the procuring and distribution of high grade drilling carbon.

Anyone interested in diamond drilling is invited to communicate with the Patrick Research Department.

Practical information of value to all interested in diamond drilling is contained in "How to Cut Carbon Costs," a booklet recently published by the Patrick Research Department. A copy will be mailed on request, without charge or obligation.

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Duluth, Minnesota, U.S.A.
Cable Address, "Exploring" Duluth

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Use B & K Machines

Bignall & Keeler Pipe Threading Machines receive all the benefits of more than a half century of experience building strong, fast, dependable pipe threading equipment. They cut threads accurately at one pass and can be operated by unskilled labor.

In the seventeen types and sizes of B & K machines you'll find the one best suited for your particular requirements. Write for our newest catalog. Sent on request and without obligation.

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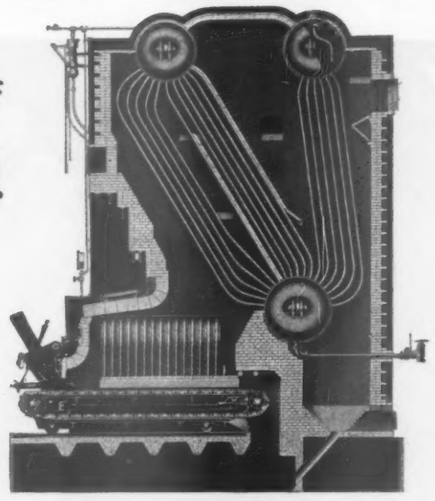
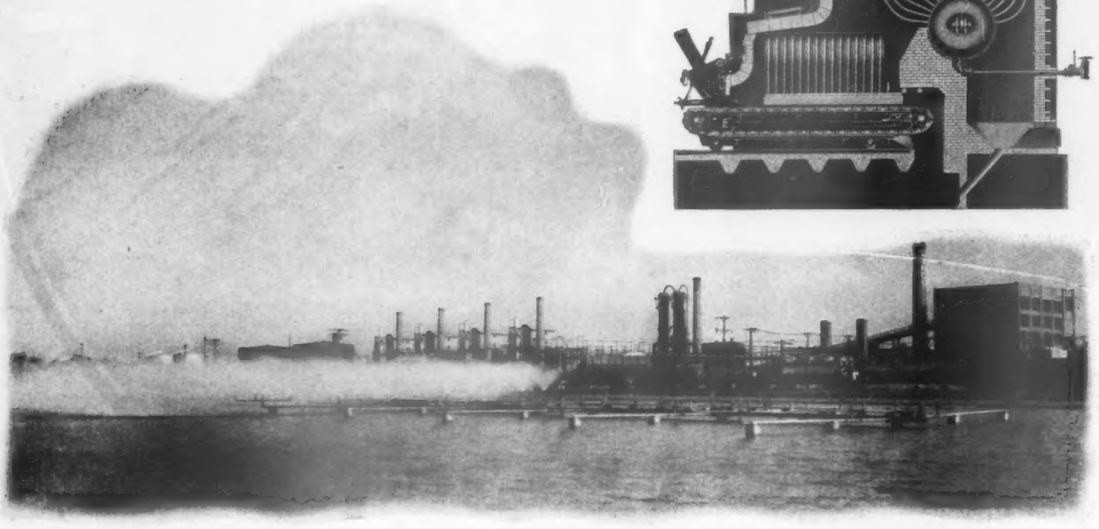
Vogt Water Tube Boilers

In MODEL POWER PLANT *of*
LINCOLN OIL REFINING CO.
ROBINSON, ILL.





OPERATING at 250% rating, three Vogt 526 horse power curved tube boilers are economically and efficiently producing steam at this well known refinery. These boilers are equipped with water cooled walls, radiant heat superheaters, air preheaters, and both forced and induced draft fans. Pressure regulators and recording flow meters automatically control performance under all operating conditions.

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(Incorporated)
LOUISVILLE, KY.

Branch Offices: New York Chicago Philadelphia Cleveland Dallas

Manufacturers of: OIL REFINERY EQUIPMENT, DROP FORGED STEEL VALVES AND FITTINGS, WATER TUBE AND HORIZONTAL RETURN TUBULAR BOILERS, ICE MAKING AND REFRIGERATING MACHINERY.

The "*Will and the Way*" to Refine Well

IF you were to refine your *own* products, you could use no greater care than Pure Oil uses in refining them *for* you.

And Pure Oil not only has the will to refine well—it has the way. Great modern refineries containing only the most approved equipment . . . expert refining knowledge—the result of thirty years' experience! This company makes all petroleum products as only an organization with such vast facilities and experience *can* make them.

And because The Pure Oil Company controls *every* step in producing and refining its products, you are assured of *uniform* quality . . . delivery on the dot.

Tune in on the PURE OIL BAND
Conducted by Edwin Franko Goldman
Every Saturday Night over WJZ and chain

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STOCKHAM MALLEABLES
stand up in OIL SERVICE

One in every ten of the 1500 workers in the vast Stockham plant is employed exclusively in tests and inspections. Stockham Fittings must be perfect—they must stand the unusual vibration, strain or sudden temperature change of oil field service.

Stockham Standard Malleables, extra-heavy malleables, special oil malleables, heavy oil malleables and hydraulic malleables—all have perfect threads that pull up easily to make tight joints—they do not leak—they are strong with heavy beads and extra body thickness—they are tough.

Buy Stockham Fittings from leading supply houses. Full stocks carried in the Mid-Continent field and Texas by E. L. Wilson Hardware Company, Midwest Piping and Supply Co., Republic Supply Co.; in California by the Republic Supply Co., Petroleum Equipment Co., and Midwest Piping and Supply Co.

STOCKHAM PIPE & FITTINGS CO., *Birmingham, Ala.*
Stocks in Boston, New York, Chicago, Houston, Tulsa, Los Angeles

Be sure the name STOCKHAM *is on the Fittings you buy*

STOCKHAM FITTINGS

CAST IRON — *Screwed—Flanged—Drainage*
ELECTRIC CAST STEEL — *Screwed—Flanged*
MALLEABLE — *Standard—Extra Heavy—Oil Country Malleable*

It's mileage that cuts truck tire costs...

and you get high mileage *with* **FISK** *All-Cords*

IT'S COST-PER-MILE that makes a truck tire an investment or an expense.

And when you figure Fisk Transportation Cords on a *mileage* basis, you'll find them an investment in every sense of the word.

They keep your truck tire costs low because their mileage is high—they wear and *wear* and WEAR, under all load and road conditions. Fisk's *All-Cord* construction, eliminating internal friction, makes Fisk *mileage* possible.

Equip your trucks with Fisk Transportation Cords if you want *mileage*... at the lowest possible cost per mile.

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FISK

TRANSPORTATION CORD

JUNE 1

SMITH*WELDED*

››› greatly increased capacity

The present year is seeing an unprecedented demand for SMITH-Welded Oil Cracking Vessels.

In keeping with the A. O. Smith Program of Engineering for Safety in Oil Cracking, the fabrication of SMITHWelded Vessels can not be and will not be hurried.

The A. O. Smith Corporation is meeting the increased demand by plant expansion . . . Increased Pipe Capacity is now available . . . Greatly increased Still Capacity will be available in June.

A. O. SMITH CORPORATION
General Offices: Milwaukee, Wis.
OIL AND GAS FIELD PRODUCTS DIVISION
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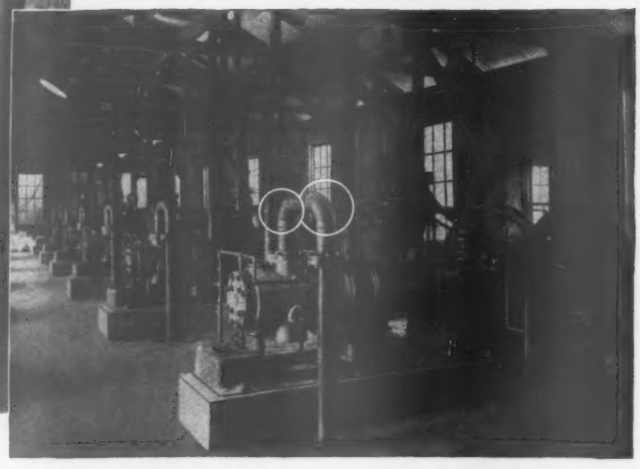
CRACKING STILLS

TUBE-TURNS *used in gasoline plant piping.*

Pipe Welding *Simplified*



NEW fitting reduces friction
...*saves time, space, money*

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Detroit, Michigan

ERECTING pipe by the welding process has always offered definite advantages over any other method. Now those advantages are multiplied by the introduction of TUBE-TURNS, the seamless drawn fittings for welded piping. There is no other fitting like a TUBE-TURN.

The smooth inner walls, and the perfect circular cross-section, offer less resistance to circulation than any other type of short-radius turn or fitting.

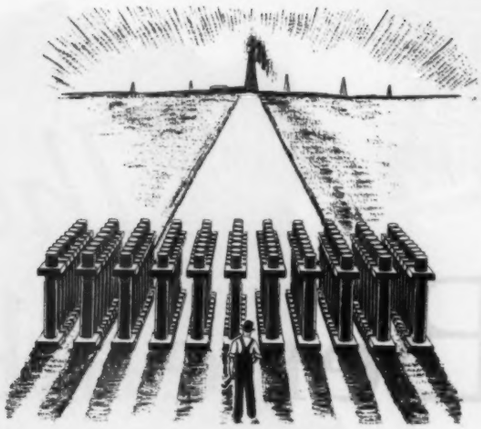
TUBE-TURNS simplify erection—especially when working in limited space, at close quarters—saving time and cutting costs. In fact erection is speeded up at every turn, as with this fitting only two welds *straight across the pipe* are required.

TUBE-TURNS save on insulation costs and materially improve the appearance of the finished job.

For details and specific applications in your industry, write: TUBE-TURNS, *Incorporated,* 1252 Logan St., Louisville, Ky.

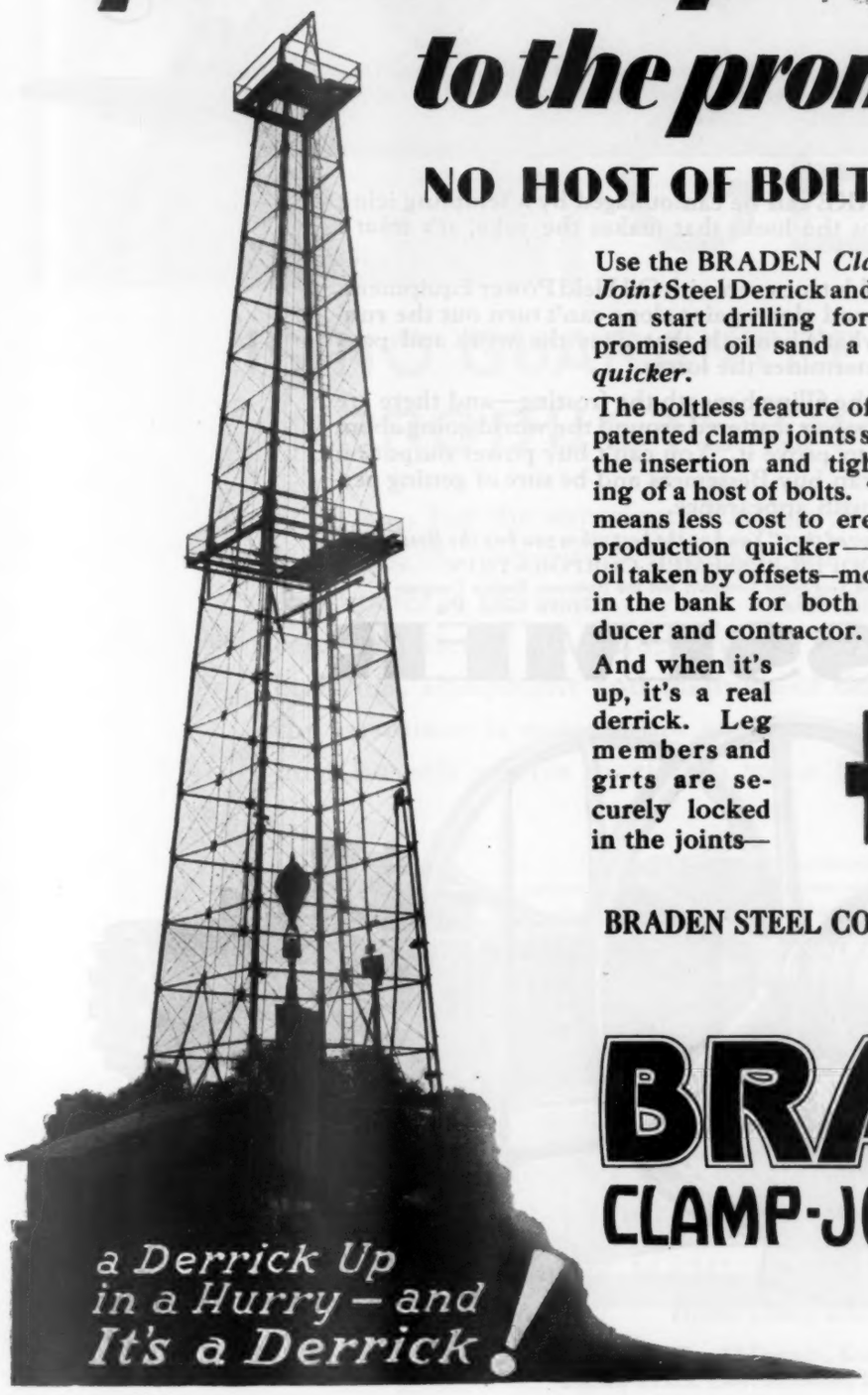
TUBE-TURNS

No Thinning of Outside Wall—No Buckling of Inside Wall



A quicker trip to the promised sand

NO HOST OF BOLTS TO DELAY YOU!

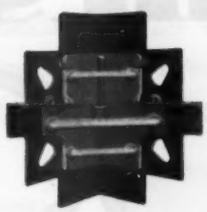


Use the BRADEN *Clamp-Joint* Steel Derrick and you can start drilling for the promised oil sand a *day quicker.*

The boltless feature of the patented clamp joints saves the insertion and tightening of a host of bolts. This means less cost to erect—production quicker—less oil taken by offsets—money in the bank for both producer and contractor.

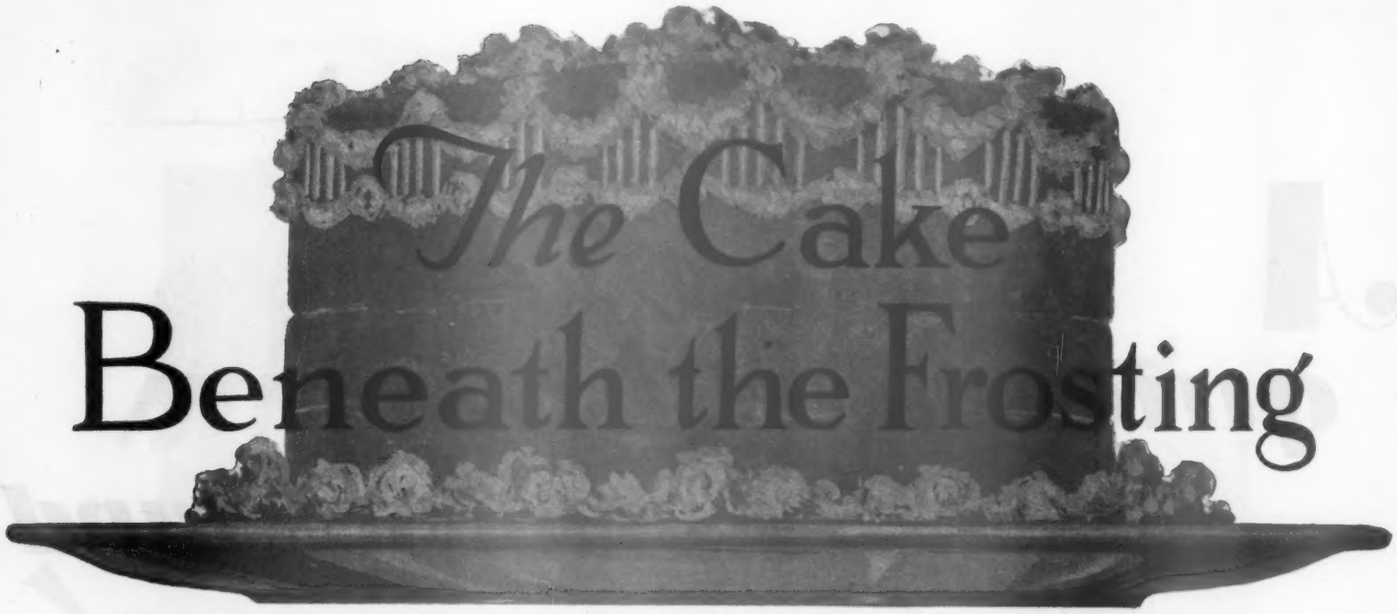
And when it's up, it's a real derrick. Leg members and girts are securely locked in the joints—full end-to-end bearing of leg members—tuned with the turnbuckles—no play, no racking or loosening of parts—the springiest derrick in the field—a derrick without a weakness.

The patented Clamp-Joint consists of inner and outer plates, locked together by inserting a wedge shaped, pin through a "U" bend from the outer plate. Legs and girts are gripped firmly, and are locked into position by lugs on inner plate which fit into the notches in legs and girts.



BRADEN STEEL CORPORATION, TULSA, OKLA.

BRADEN
CLAMP-JOINT DERRICK



ANY OLD CAKE can be camouflaged by a tempting icing—but it's not the looks that makes the cake, *it's what's beneath the icing.*

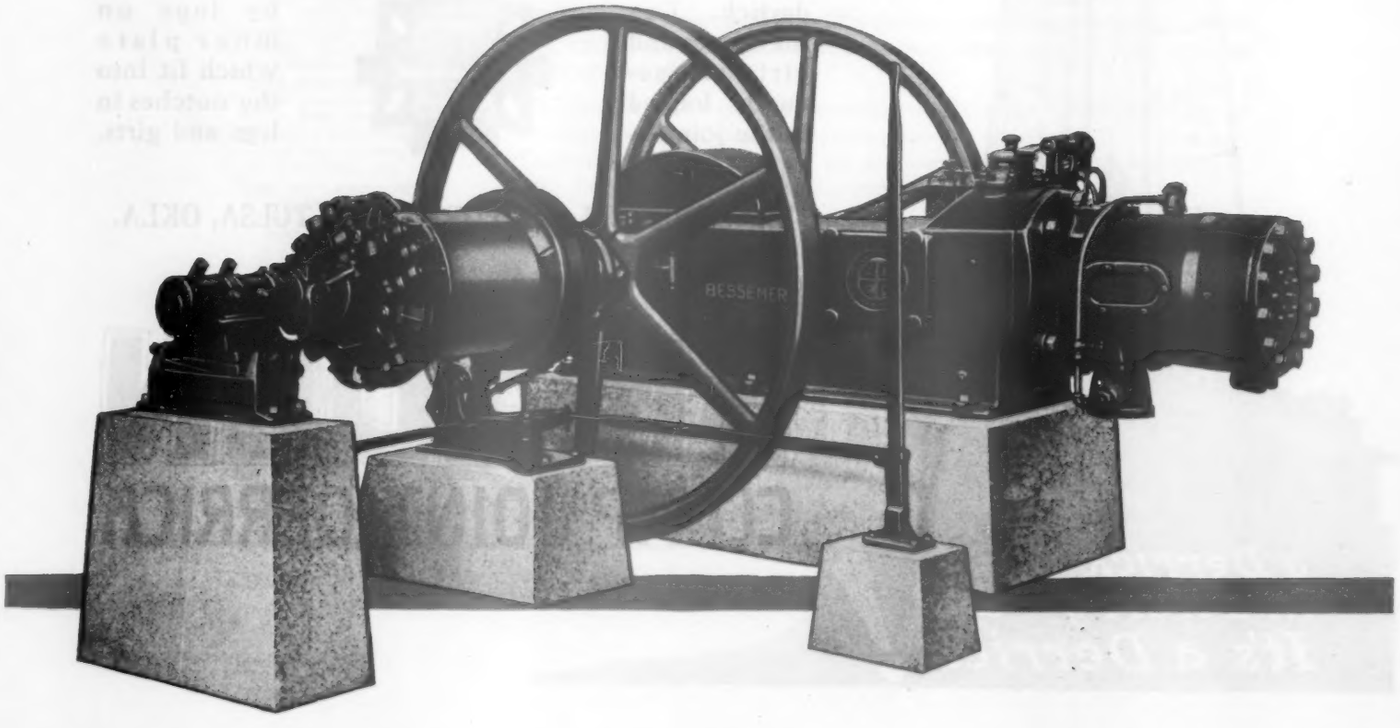
And the same holds true even with Oil Field Power Equipment. Fancy trimmin's and glossy paint alone can't turn out the running hours. It's what's beneath that does the work and pays the profits, or determines the losses.

Bessemers have the filling beneath the frosting—and there are 1,420,000 horsepower scattered around the world going about their daily jobs to prove it. You can't buy power output on looks—but you can buy Bessemers and be sure of getting performance along with appearance.

Thirty years have proved that "You buy the best when you buy the Bessemer".

THE COOPER-BESSEMER CORPORATION
Formerly The C. & G. Cooper Company and the Bessemer Engine Company
Mt. Vernon, Ohio. Grove City, Pa.

BESSEMER



GE OF ITSELF

IS NO GUARANTEE OF UNUSUAL PRODUCTS OR SERVICE

. . . . . but the experience that age provides, the traditions it builds, the integrity it indicates, are all factors of decided importance to the buyer. . . . . And when, as in JARECKI'S case, experience stretching back to 1852 is combined with buildings, equipment and methods of decided 1929 vintage, the customer is reasonably sure that no matter what he buys he will receive maximum value for each dollar spent.

. . . . JARECKI Cast Iron Working Barrels are made with the trueness and precision of gun-barrels. The metal is peculiarly close-grained —free from slag pockets and other imperfections. Inside finish is glassy smooth. . . . . No wonder so many are bought each year—one company alone uses fifteen thousand!

Branch Stores at all important places in the Oil Country

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Home Office and Factory—Erie, Pa., U. S. A.

General Office—St. Louis, Mo. *District Offices*—Pittsburgh, Pa.; El Dorado, Kan.; Tulsa, Okla.; Newark, Ohio; Eastland and Dallas, Texas; Lawrenceville, Ill.

Rugged!
—Yet Giving the Finest Control
MASON REGULATOR CO BOSTON MASS 2 IN.
This Mason
STYLE E
ROTARY SHAFT
Balanced Valve
is one specially designed for oil field service. It is of the most advanced design, the main valve is scientifically proportioned controlling the flow of its various openings. It is especially constructed for 600 lb. pressure—cast steel body—stainless trimmed with forged steel seat rings.
It will stand up under the hardest kind of service, yet it has not sacrificed close pressure control in attaining this rugged construction.
The Mason improved construction minimizes friction and wear on the packing, eliminates friction and wear on the stem, and there are no exposed working parts to corrode or gather dust.
Write for catalog and folder.
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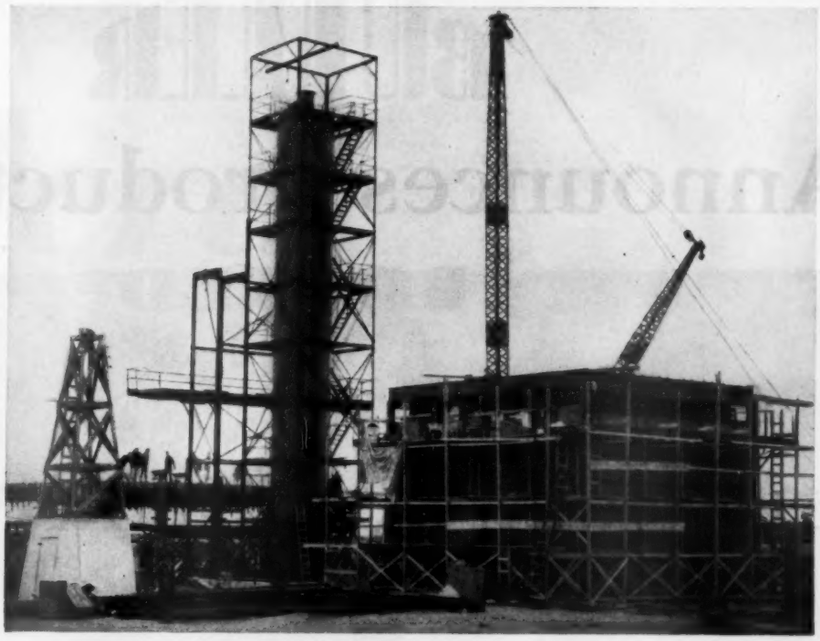
1190 Adams Street,
Dorchester Centre Station,
Boston, Mass.
Mason Regulator Co., Ltd.,
686 Notre Dame St., West,
MONTREAL, CANADA
Mason Regulators
Note the Rugged and Simple Construction



A 5,000 Barrel Distilling Unit

The erection of a Foster Wheeler distillation unit for the removal of gasoline, gas oil and fuel oil, is here shown under construction.

A standard Foster tube still (at the right) heats 5,000 barrels of crude per day to a final temperature sufficient to vaporize 80-90 percent of the crude. This charge is delivered to the tower, which is arranged for a top stream of gasoline, a side stream of gas oil and fuel oil bottoms. Provision is made in the construction of the tower for additional side streams in case lubricating stocks are desired.

This distilling unit includes Foster vapor heat exchangers, vapor condenser, fuel oil heat exchanger; also a small boiler plant for heating and stand-by for steam pumps in case of electrical failure.

FOSTER WHEELER CORPORATION
165 Broadway, New York, N. Y.

Branches in Principal Oil Centers

Foreign Associates:

Foster Wheeler Limited, London, England.
Foster Wheeler Limited, Toronto-Montreal-Vancouver, Canada.

FOSTER WHEELER

BUTLER

Announces Production of

BOLTED TANKS

STEEL BUTLER PRODUCTS

In Strict Conformity With

API

Dimensional Standards For Bolted Steel Tanks

First edition, January, 1929. Under a certificate of authority, issued May 7, 1929, the Butler Manufacturing Company is requested to label Butler A.P.I. Specification Bolted Tanks with the official monogram reproduced above. This and the Butler monogram is a double pledge of the utmost value in Bolted Steel Tanks.

BUTLER MANUFACTURING COMPANY

KANSAS CITY, MO. MINNEAPOLIS, MINN.

These reliable dealers are ready to render speedy Butler Bolted Tank service:

Drane Tank Co., at Tulsa, Holdenville, Seminole, Hallett and Shawnee, Oklahoma; El Dorado, Madison, Wichita and Valley Center, Kansas.

Drane-Humphrey Co., at San Angelo, Big Lake, Pyote and McCamey, Texas, and Roswell, New Mexico.

Keyes-Butler Tank Co., of Casper and Cody, Wyoming.
Thomas Moran, at Oil City, Shreveport and Georgetown, Louisiana.

M. A. Trimmer, at Blackwell and Lovell, Oklahoma.
Muskegon Boiler Works, Muskegon, Michigan.

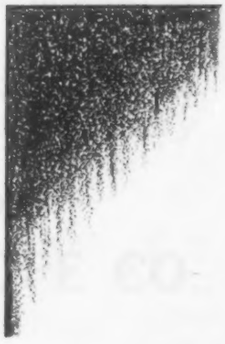
Here

"Cut Oil" problems are solved by expert chemists

At the home of Tret-O-litE, the building shown in the red circle is used entirely as a laboratory, where a large staff of chemists analyze "cut oil" samples sent in by customers and our field men. No emulsion ("cut oil" or "B. S.") is too difficult for these chemists, with their experience and the facilities at their disposal.

Here it is determined which grade of Tret-O-litE will give efficient and thorough separation of any petroleum emulsion. A special grade of Tret-O-litE is specified if necessary.

Petroleum producers can depend on the Tret-O-litE Process and on Wm. S. Barnickel & Company service.



WM. S. BARNICKEL & COMPANY
WEBSTER GROVES, MO.

Tret-O-litE

Reg. U. S. Pat. Off.

SKILLED SUPERVISION

Guarantees the Quality

OF GULF PRODUCTS

COASTAL AND PARAFFINE CRUDES—
GASOLINE—LUBRICATING OILS—
NAPHTHA—GAS—OILS—
WAX—PETROLEUM COKE—
CYLINDER—ENGINE—CORDAGE

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General Sales Offices: PITTSBURGH, PA.

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Mobile (Magazine Point, Ala.)
Philadelphia (Girard Point, Pa.)
Charleston, S. C.
Savannah, Ga.
New Orleans (Gretna, La.)
Port Arthur, Texas
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The Oil and Gas Journal

PRODUCING REFINING ENGINEERING MARKETING

VOL. 28. NO. 2. TULSA, OKLAHOMA, MAY 30, 1929

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Refinery Section Starts on Page 138

Production Increases in Big Fields

Highest daily average estimated total production in 1928, week ended Dec. 29, 2,585,844 bbls. Lowest in 1928, May 19, 2,338,241 bbls.

Three States Contribute Largely to Upward Trend. Supply Under Demand in Oklahoma-Kansas

By James McIntyre

Highest daily average estimated light oil production in 1928, week ended Dec. 29, 2,158,134 bbls. Lowest in 1928, Mar. 3, 1,927,713 bbls.

An increase of 46,357 barrels a day in the average daily production of the oil fields of the United States was caused in part by the recent increase in the posted prices of crude oil; partly by the comeback of the Seminole area following the ending of proration in Oklahoma, and in a measure to new wells in California. The increase was spread over a number of producing divisions. Oklahoma increased 18,380 barrels; California, 12,000 barrels; West Texas, 11,493 barrels; Southwest Texas, 2,369 barrels, and the Rocky Mountain fields 2,011 barrels. Those were the most pronounced changes.

In the Mid-Continent area the crude oil situation continues tight notwithstanding the 18,380-barrel daily increase in Oklahoma. Oil is being withdrawn from storage, how much it is impossible to ascertain accurately. Estimates on the quantity being withdrawn in Oklahoma and Kansas alone range from 30,000 barrels a day up to 45,000 barrels a day. Oklahoma and Kansas last week produced 807,075 barrels per day, but this is 30,000 barrels a day under the estimate of the crude requirements from the two States made three weeks ago. Within another month we will have had actual evidence of what may be expected from the Asher and the Oklahoma City districts in Oklahoma, which are the only pools from which an increase can be expected in the near future. California is 40,000 barrels a day below its high mark in February but operators have shut in about 75,000 barrels a day in conformity with curtailment orders of the state umpire.

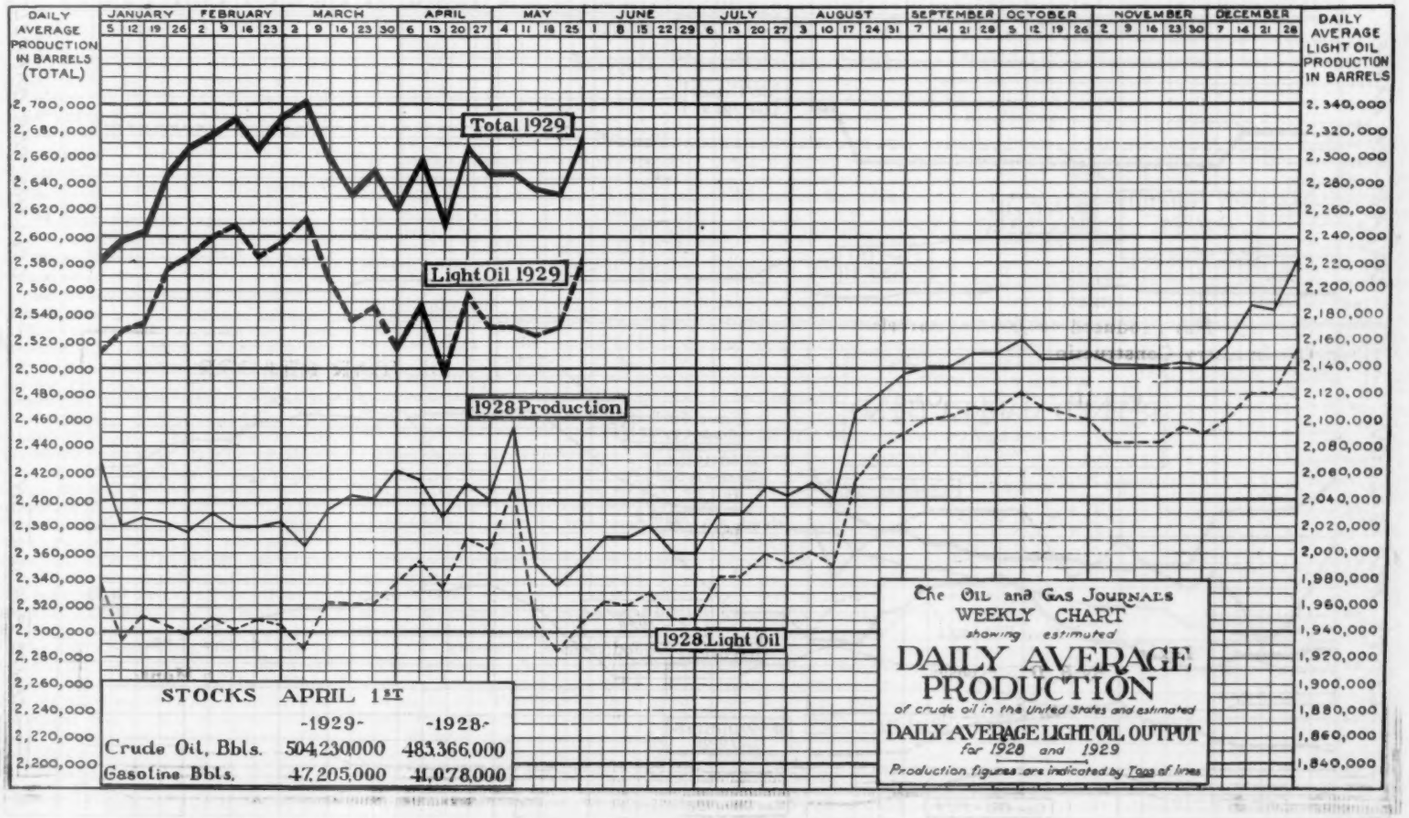
There seems little chance of any material decline in the production of Oklahoma this week and it may take several weeks before the field sees a real slump in production. As far as one may be able to judge from logs of drilling wells in the Asher district that area, thus far, is somewhat of a disappointment. The trend of West Texas production will depend upon the demand for it and the demand may be affected by the recent increase in posted price.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity oil in the United States for week ended May 25, and a comparison with the previous week follows:

	May 25		May 18	
	Light	Heavy	Light	Heavy
Oklahoma—				
Tonkawa	10,060	.....	10,180	.....
Burbank	20,400	.....	20,535	.....
Other Osage Fields	25,860	.....	24,840	.....
St. Louis-Pearson	93,315	.....	94,145	.....
Cushing-Shamrock	19,800	.....	20,130	.....
Bristow	19,400	.....	19,270	.....
Allen	23,740	.....	24,810	.....
Seminole	300,415	.....	281,730	.....
Northern Miscellaneous	122,290	.....	121,560	.....
Southern Fields	55,270	.....	54,970	.....
Total Oklahoma	690,550	.....	672,170	.....
West Texas—				
Hendricks	143,905	.....	139,591	.....
Yates	98,710	.....	91,564	.....
Remainder	121,722	.....	121,689	.....
Total West Texas	364,337	.....	352,844	.....
North Louisiana	29,565	5,840	29,410	5,960
Arkansas	22,750	48,775	22,580	48,610
North Central Texas	136,605	.....	137,123	.....
Texas Panhandle	63,945	.....	63,140	.....
East Central Texas	19,934	.....	19,603	.....
Kansas	116,525	.....	115,210	.....
Total Mid-Continent Area	1,444,211	54,615	1,412,080	54,570
Gulf Coast	.....	146,710	.....	140,909
Southwest Texas	.....	80,042	.....	77,673
Eastern Fields	115,000	.....	114,000	.....
Rocky Mountain Area	72,882	.....	70,871	.....
California—				
Santa Fe Springs	181,000	.....	168,000	.....
Long Beach	176,000	.....	175,000	.....
Torrance	2,500	10,000	2,500	10,000
Huntington Beach	42,000	.....	42,000	.....
Elwood	28,000	.....	28,000	.....
Inglewood	13,000	9,500	13,000	9,500
Ventura Avenue	56,000	.....	54,500	.....
Seal Beach	40,000	.....	39,500	.....
Remainder of State	52,000	155,000	53,000	158,000
Total California	590,500	174,500	575,500	177,500
Total United States	2,222,593	455,867	2,172,451	459,652
Grand Total		2,678,460		2,632,103

Total Increase, 46,357 Bbls.; Light Oil Increase, 50,142 Bbls.



All Gasolines Continue to Advance

Oklahoma Refinery Grades and Natural Gasolines Move Up. Higher West Texas Crude Oils Aid Market. Export Situation Uncertain

By C. O. Willson

With the inducement of an additional 1-cent advance in gasoline tank wagon and service station prices in the Standard of Indiana and Standard of Nebraska territories, gasoline prices at Oklahoma (Group 3) refineries continued to advance during the past week. In addition to these territories which include 11 states of the Middle West, gasoline tank wagon and service station prices also were advanced in several Rocky Mountain and southwestern states so that the consuming outlets for Oklahoma refiners experienced a general advance.

Impelled by these advances in the wholesale and retail markets together with the fear that crude oil prices will again be advanced in the Mid-Continent area, Oklahoma refiners advanced their price on U. S. Motor gasoline to 9 cents the latter part of last week. The first of this week several refiners advanced to 9¼ cents. Up to Tuesday, however, that price had not been generally established although it was the general quotation for material to be moved the early part of June. Quotations of 9¼ cents were reported for the first 15 days of June and the sellers were hoping that price to the trade would be generally accepted by the end of the week.

Refiners who have endeavored to advance their gasoline prices in line with the increased cost of crude oil and the two 1-cent advances in the retail prices have been handicapped by the fact that considerable material was sold early in the month to jobbers and marketers at lower prices. Marketers have been offering resale material which they purchased from refiners at 7½ to 8 cents, from one-quarter to one-half cent under the refiners' quotations to the trade.

Due to this situation the spot movement at the higher prices has not been heavy. With the resale material out of the market picture with the end of May, it is expected that shipments at the higher prices will materially improve. The fact that the summer consumption season starts at that time should also be reflected in the spot and contract movement.

Despite the substantial advance in crude oil prices effective May 20, there are many in the trade who are confidently predicting another advance early in June. This expectation is a market factor at this time as the refiners in most cases have yet been unable to offset the increase of last week with their realization on finished products. Should the crude advance materialize it is apparent refiners would consider a price of 10 cents or more necessary for U. S. Motor gasoline. Contrary to this more or less general expectation of higher crude oil prices, a few in the trade are certain that no more changes will materialize until late in the summer when prices will be moved up or down in line with the crude oil situation at that time.

It is needless to state that from the refiners' viewpoint further advances in crude oil prices are not justified. With gasoline storage in the Mid-Continent approximately 40 per cent higher than it was a year ago according to latest available reports of the Government and gasoline production approximately 16 per cent greater, the sellers fear a duplication of previous years in which refinery gasoline prices started to decline in the early summer and continued to drop until late fall. The competition of gasoline from East Coast and Gulf Coast refineries and that brought around to the East Coast from California at lower manufacturing costs it is contended, will become more and more a price factor.

Export Market Low

In this connection as was explained in these columns last week, the interior refiners are anxious to see the export market situation straightened out before any more changes are made in the domestic gasoline prices. The expected advance in

(Continued on Page 159)

REFINED MARKET BAROMETER

Refinery gasoline prices advanced approximately 1 cent a gallon in most of the refining areas east of the West Coast during the past week. General advances in gasoline tank wagon and service station prices in several consuming areas materially aided the refinery market. Export gasoline prices were not advanced. Kerosene prices for the most part were steady although refiners whose crude oil prices have been advanced recently were endeavoring to secure fractionally higher prices. The furnace oil distillate demand is near at end and activity in that product is confined to contracts for the coming season. Fuel oil and gas oil prices were advanced by many refiners in the Mid-Continent due to the higher crude oil prices. Natural gasoline prices advanced sharply in the Mid-Continent with weakness apparent in California where the margin has been reduced by lowering the top prices. Lubricating oils were steady with all grades of cylinder stock and neutral oils more freely available in the East. Wax prices unchanged with more inquiries reported in export market.

Mid-Continent—Higher refinery gasoline prices follow general advance in gasoline tank wagon and service station prices in consuming territories. Better movement at higher prices expected in June. Kerosene prices either steady or fractionally higher. A number of refiners have advanced fuel oil and gas oil prices in all areas due to higher crude oil prices. Natural gasoline prices advance rapidly. Lubricating oils easier at steady prices.

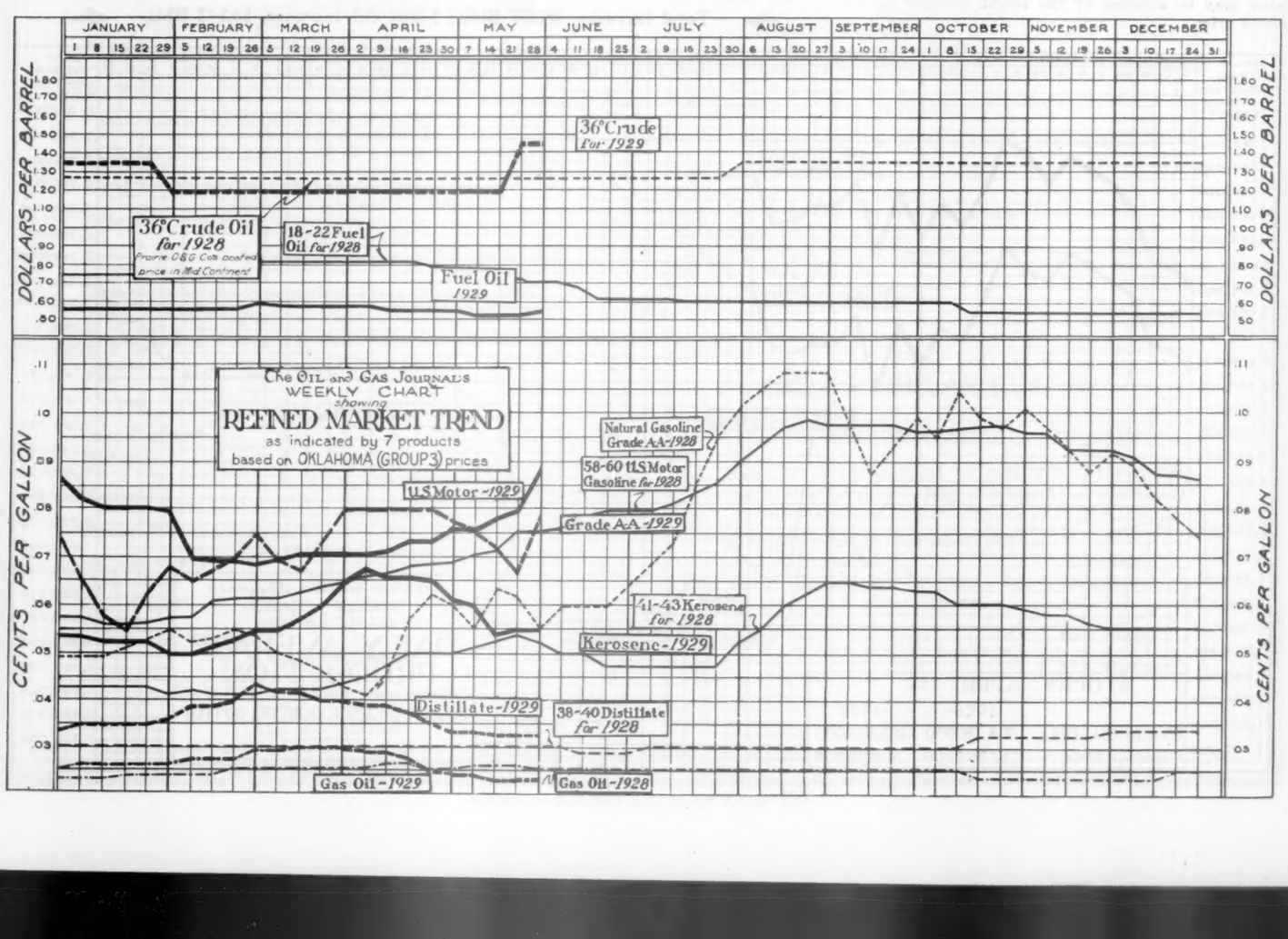
East Coast—Full 1-cent advance in U. S. Motor price to jobbing trade. Gasoline export prices unchanged. All grades of lubricants easier with no changes in prices. Kerosene steady. Better grades of gas oil in strong demand. Fuel oil prices unchanged. Moderate trading in wax. Better demand for petrolatum.

Chicago—Gasoline prices advance despite slow trading. Gasoline movement expected to increase first of June. Kerosene prices higher. Better grades of fuel oil and gas oil advance with no change in high sulphur material. Bright stock and steam refined stock strong.

California—Refinery gasoline market strong. Natural gasoline prices lower.

Gulf Coast—Several major refiners advance prices on neutral oils one-half to 1 cent following advance in Gulf Coast crude oils. Other refiners awaiting better movement before making price changes. Fuel oil stronger with better movement.

Pennsylvania—Refinery gasoline prices higher. Kerosene weak. Wax prices lower. Steam refined cylinder stock and bright stock more freely offered with no changes in prices.



Requa Named Chairman of Conference

Former Director General Chosen by Secretary Wilbur to Preside at Colorado Springs Meeting Called by President Hoover

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., May 28.—Secretary Wilbur today sent a telegram to Mark L. Requa, in California, asking him to be present at and to preside as chairman of the oil conference called by President Hoover and to be held at Colorado Springs, Colo., beginning June 10. He asked Mr. Requa immediately to take the government oath and to act on that occasion as the representative of the Government. Mr. Requa accepted and was sworn in.

Secretary Wilbur will himself be present at the conference when it is opened, will aid in its organization and then will turn it over to those who constitute it.

Mr. Requa is a mining engineer, a retired oil operator, and was director general of the oil division of the United States fuel administration during the war. He has been working recently as a free lance in the interest of oil conservation.

Secretary Wilbur explained that while this conference is called by the President and is to be attended by officials of the Federal Oil Conservation Board, the Department of the Interior, and the various oil producing states, and representatives of the petroleum industry, it is in fact preliminary and has no final authority. Any action it might take would be in the nature of a recommendation. It would have no authority to write a binding compact. If specific results should grow out of it they would have to develop step by step as a result of its deliberations. State legislatures might take action leading to uniform legislation and the acceptance of an oil conservation compact subject to the final approval of Congress.

Board Announces Acceptances

The oil board has received acceptances to attend the conference from seven governors, those of New Mexico, Kansas, Wyoming, California, Colorado, Oklahoma, and Texas. Most of these governors will attend in person and bring expert delegations with them. Those who are unable to attend will send representatives. Some of them have stated their desire to bring delegations containing as many as 20 members. To such suggestions Secretary Wilbur, chairman of the Oil Conservation Board, has replied by asking that three of these representatives, in the interest of convenience, be designated as official.

There are four States, Arkansas, Utah, Montana, and Louisiana, from which definite word as to attending the conference has not yet been received. The American Petroleum Institute, along with other representatives of the oil industry, was invited to attend. The Independent Oil Producers Association, the Rocky Mountain Oil and Gas Association, the California Oil and Gas Association, and the Oklahoma-Kansas division of the Mid-Continent Royalty Owners Association, were similarly invited and have signified their intention to send representatives. The Mid-Continent Oil and Gas Association was invited and its action will be determined at a meeting of the board of directors in Tulsa on June 2.

The Oil Conservation Board will be represented in addition to Secretary Wilbur, its chairman, by Dr. George Otis Smith, director of the United States Geological Survey and chairman of the board of technical advisors of the Federal Oil Conservation Board, and Edward S. Rochester, secretary to the board. Edward C. Finney, solicitor of the Department of the Interior, and Northcutt Ely and William Atherton Dupuy, executive assistants to the secretary, will also attend.

Board Holds Conference

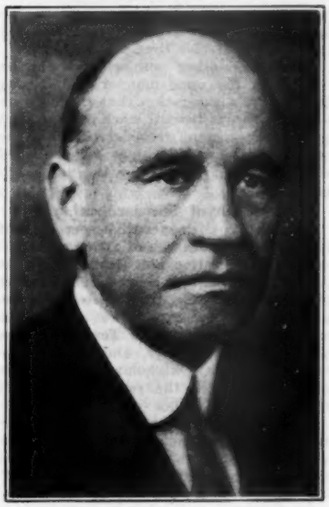
The Federal Oil Conservation Board held a meeting in the office of Secretary Ray Lyman Wilbur, chairman of the board, Thursday, attended also by Secretary Robert Patterson Lamont, Department of Commerce; Secretary James W. Good, War Department, and Secretary Charles Francis Adams, of the Navy. This meeting was held with closed doors. Secretary Wilbur announcing it was a committee meeting in fact, for the informal consideration of the proposal for an interstate compact. After two hours spent with representatives of the oil industry the only information given out was that there had been an interchange of views with no conclusion reached on any phase of the subject under consideration.

All of those attending the conference felt obligated to maintain the secrecy that had been enjoined upon them. This privacy of discussion was said to be for the purpose of promoting expressions of opinion prior to the conference at Colorado Springs.

Chairman Wilbur's Statement

In further explanation of the Colorado Springs conference, Secretary Wilbur issued the following formal announcement:

"The Federal Oil Conservation Board announces that in connection with the scheduled meeting at Colorado Springs of representatives of the Governors of a number of oil-producing states, a cordial invitation was sent out today to representatives of the independent producers of oil, as well as to major companies, to attend and offer any suggestions which they may have concerning the elimination of waste and other conservation measures.



Mark L. Requa

"The plan of the meeting is to discuss general principles rather than a specific interstate compact. The Federal Oil Conservation Board has no specific form of compact in mind. It hopes that out of the conference some satisfactory plan may arise. The general principles are to promote uniformity of the conservation laws of the various oil producing states, provide against inequitable distribution of the burden of conservation among the states, and to provide stability of uniform provisions over a period of years.

"It is thought that flexibility to meet changing conditions could best be secured by some method which would entrust to an interstate conservation body certain regulatory functions. If there should be common agreement among certain of the states, then the plan would be to have further action depend upon the legislatures of the states and Congress."

Announcement was also made that Dr. George Otis Smith, director of the Geological Survey and chairman of the board's technical committee, together with Mark L. Requa, who is devoting his entire time to the promotion of conservation, will be present at Colorado Springs. Dr. Smith has held conferences with Governor Moody of Texas and he and Mr. Requa have discussed conservation with Governor Young of California and have spent considerable time in the Kettleman Hills Field.

Oil Representatives Present

At Thursday's meeting of the Conservation Board in addition to the mem-

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A.P.I. Accepts Wilbur's Invitation

Names Committee to Attend Conference and Adopts Resolutions Stating Principles Involved

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, May 28.—Directors of the American Petroleum Institute meeting here today accepted Secretary Wilbur's invitation to attend the conference of governors of oil producing states to be held in Colorado Springs June 10 and appointed a committee headed by E. B. Reeser, president, to represent the Institute.

The directors adopted a resolution urging the desirability of uniform conservation laws in the various producing states with regulation in the hands of state commissions authorized to approve agreements affecting conservation and the establishment of major principles to guide the commissions in their action.

Summed up, the directors have decided to continue their study of the conservation program, the committee to attend the governor's conference not being authorized to commit the Institute to any definite program.

Nothing developed in connection with the South American conservation program, it being understood that this movement will remain in the background until the domestic situation is ironed out.

Resolution Adopted

The resolution adopted by the board reads as follows:

Whereas, the President of the United States has invited the Governors of certain oil producing states to attend a conference in Colorado Springs on June 10 to consider the subject of conservation of our oil and gas resources, and,

Whereas, the Federal Oil Conservation Board has invited the American Petroleum Institute to send representatives to that conference,

Therefore, be it resolved:

One. That the invitation be accepted and that the president of the Institute be authorized to appoint a committee to attend that conference.

Two. That the institute recognizes the desirability

(a) Of uniform conservation laws in the major oil and gas producing states;

(b) Such safeguards for the enforcement of these enactments as it may be found possible;

(c) Flexibility in enforcement by entrusting the formulation of regulatory provisions to a commission;

(d) Authority in the commission to approve agreements affecting conservation;

(e) Establishment of a few major principles to guide the commission in its action, and,

Three. That the committee should report back to the board of directors before undertaking to commit the Institute to any definite program.

Following is the committee appointed to represent the Institute at the governor's conference: E. B. Reeser, president American Petroleum Institute; W. R. Boyd Jr., executive vice president American Petroleum Institute, and the following, who are members of the general committee of the A.P.I. committee on world production and consumption of petroleum and its products:

R. C. Holmes, president The Texas Company; K. R. Kingsbury, president Standard Oil Co. of Calif.; G. Legh Jones, president Shell Co. of California; L. P. St. Clair, vice president Union Oil Co. of California; W. C. Franklin, vice president Tidal Oil Co.; B. H. Stephen, vice president Magnolia Petroleum Co.; W. N. Davis, vice president Phillips Petroleum Co.; W. S. Fitzpatrick, chairman of the board, Prairie Oil & Gas Co.; Roy B. Jones, president Panhandle Producing & Refining Co.; W. M. Irish, president Atlantic Refining Co.; F. R. Coates, vice president Henry L. Doherty & Co.; Henry M. Dawes, president Pure Oil Co.; W. C. Teagle, president Standard Oil Co. (New Jersey); Axtell J. Byles, president Tide Water Associated Oil Co.; E. J. Sadler, president Creole Petroleum Co.; R. G. Stewart, president Pan-American Petroleum & Transport Co.; Richard Airey, president Asiatic Petroleum Co.; C. F. Meyer, president Standard Oil Co. of New York; A. E. Watts, vice president Sinclair Consolidated Oil Corp.; W. E. Farish, president Humble Oil & Refining Co.; J. Edgar Pew, vice president Sun Oil Co., and such number of oil company counsel as the president may select.

The following were present at today's meeting: E. B. Reeser, president American Petroleum Institute; W. R. Boyd, executive vice president of the Institute; H. L. Pratt, chairman of the board, Standard Oil Co. of New York; W. S. Fitzpat-

(Continued on Page 160)

Engineers Discuss Important Topics

Interest in Gas-Lift and Straight-Hole Practice Brings Together Many Field Experts. Standardization Progress

By L. G. E. Bignell
Petroleum Engineering Editor

The spring meeting of the Mid-Continent District of the American Petroleum Institute, Division of Development and Production Engineering, started at 10:30 Tuesday morning, May 28, with an attendance of approximately 250 men representing all of the major oil companies in the Oklahoma and Kansas territory, with many visitors from North Central and Gulf Coast districts of Texas.

Chairman J. R. McWilliams called the meeting to order and after a brief address of welcome introduced John R. Suman, national chairman of the Division of Development and Production Engineering, who complimented the Mid-Continent division upon the work thus far accomplished and predicted much future good to come out of the district and field meetings that have been and are to be held in this district.

Mr. Suman stated that so far there had only been two criticisms of the division's work, one was that there was too much time devoted to dealing with engineering, and the second, that there was not enough time devoted to engineering. He therefore promises that if the members of the division will attend regularly that they will either cut down or increase the amount of engineering discussion according to the wishes of the majority attending the meetings, for the meetings are for the good of the members and the members can get out of them just what they put into them.

Mr. Suman made special reference to the recently issued book compiled under the direction of H. C. Miller, senior petroleum engineer of the United States Bureau of Mines, covering the "Function of Natural Gas in the Production of Oil," and issued by the American Petroleum Institute in conjunction with the bureau. This is an example, he said, of what can be done at meetings attended by both the engineer and the field men and is the last word of the experience of both on this subject at this time.

Numerous other subjects should be treated in the same manner and it was Mr. Suman's suggestion that the division bend its efforts toward work of that kind so that permanent records will be made of its meetings and things accomplished will be made available for the use of all interested.

Growth of Standardization

Carl A. Young, executive secretary of the Division of Standardization next addressed the meeting and first stated that A. L. Field, newly elected chairman of the Texas division, had wired his regrets at not being able to attend this session. Others from the Texas divisions were present, however, and many members from the Oklahoma and Kansas division attended the recent meeting of the section at Dallas.

Mr. Young opened his remarks by stating that the standardization committee was gratified to be able to report that there were over 300 manufacturers working under licenses granted by the American Petroleum Institute and making standardized materials. Also that over 2,000 copies of the handbook had been distributed and this distribution covered the entire United States and many foreign countries.

It was particularly interesting to note that word had recently been received from France and Germany stating that those countries were interested in the adaption of the codes and rules prepared for the use of oil fields in the United States.

Very recently the standardization committee sent questionnaires to those interested asking how the standards that have been adopted thus far are working in the field in actual practice. As replies are received the information will be compiled into a form to permit study by the committees handling the different items so that revision may be recommended if necessary.

Mr. Young stressed the point that the A.P.I. standards were made for and by the men actually engaged in the oil business and if they were not used this labor would be useless, and he urged that each section of the country adopt the A.P.I. standards as their standards and use them until such time as they had been proven or disproven by actual field tests to be right or wrong.

Some seem to have the idea that the American Petroleum Institute is a thing apart from the industry, he said, and that they, as independent operators or individuals, cannot share in the work that has been done. Mr. Young said that nothing is more erroneous, as the American Petroleum Institute is made up entirely of men in the industry, as will be easily seen if the list of names of men serving on the different committees is read. These men are known to all in the industry and their work is passed along for the benefit of the whole industry. There will, of necessity, be some sacrifices required to adopt some of the items that have been standardized to the use of all fields, but to succeed and be of a national importance it must be the duty of everyone to accept, at least for a fair trial, those standards that the A.P.I. committees have recommended and after the use of the equipment in the fields if there are legitimate changes necessary they will be considered and made, if approved by the majority.

A Matter of Developments

It is Mr. Young's opinion that the work of standardization will never be entirely completed, but we must all accept what is being done by the committees as representing the very latest developments at the time and expect to add to our knowledge of field requirements as we progress with our work.

The manufacturers will follow the trend of the field man's demands and if the A.P.I. standard equipment is specified they will carry it in their stocks at all points, but if they find that an article having the approval of the A.P.I. standardization committees is not meeting with favor in the fields it will not

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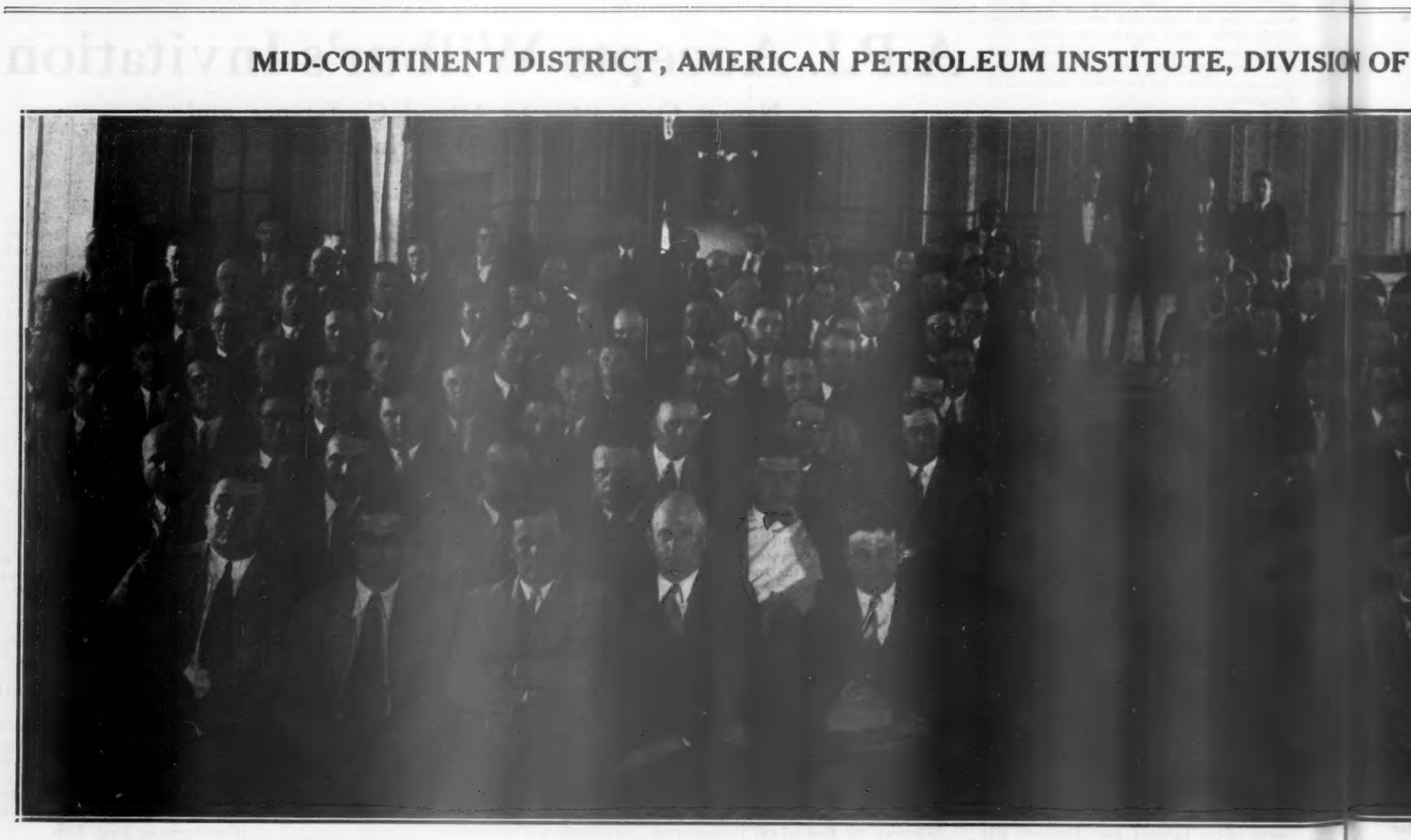
MID-CONTINENT DISTRICT, AMERICAN PETROLEUM INSTITUTE, DIVISION OF



Frannie Structure Geology Analyzed

Indications Point to 110 Feet of Untested Sandstone Above Top of Madison Lime That May Serve as Oil or Gas Reservoir

By Charles T. Lupton*

The Frannie structure, situated in northeastern Park County, Wyoming, came to the notice of oil operators through the bringing in of an oil well on this structure in August, 1928, drilled by E. H. Rosenburg and associates on a location made by the writer. The well flowed about 100 bbls. daily until it was placed on the pump, since which time until shut in produced approximately 300 bbls. daily. The oil has an asphalt base, a gravity of 28 plus degrees Baume, and a gasoline content of nearly 23 per cent without cracking. In other words, it is the best oil of asphalt base yet found in the Pennsylvanian beds in the Rocky Mountain region in commercial amounts.

The bed carrying the oil was encountered in the Rosenburg well at 2,585 feet and consists of sandy lime followed by a few feet of sandstone fully saturated with oil. The top of the oil-saturated horizon occurs 60 feet below the base of the "Red Beds" or Chugwater formation of Triassic age, and is believed to be part of the Embar formation of Pennsylvanian age.

The Frannie structure trends northwest and southeast. It is broken near the middle by two nearly parallel normal dip faults trending northeast and southwest which have permitted the block between them to drop 100 to 200 feet. The minimum closure of the structure is approximately 1,000 feet.

*Read before the Rocky Mountain Association of Petroleum Geologists in Denver, Colo.,

Judging from the log of a deep well on the Garland structure 13 miles to the south and exposures on Pryor Mountain to the northeast, there is believed to be more than 100 feet of sandstone capable of serving as a reservoir for oil in the underlying Tensleep and Amsden formations. Considering the fact that the Tensleep sandstone is productive of oil in commercial amounts in the Oregon Basin Field some 50 miles to the southwest, it is reasonable to expect that it will yield some oil in the Frannie structure when that sand is penetrated by the drill. The bottom of the Rosenburg well at present is only 87 feet below the base of the "Red Beds."

The gathering area of the Frannie structure is quite large to the southwest, west and northwest, but is comparatively small to the southeast, east and northeast. For approximately 20 miles to the northwest oil may have migrated into this structure.

The elevation of the railroad track at Frannie station is 4,223 feet above sea level, according to the levels run by the engineers of the Burlington Railroad. At the time the field work was done, the writer did not have this information before him, and assumed an elevation of 4,000 feet at the northeast corner of Section 25. Therefore, the elevations on the accompanying map are approximately 225 feet low.

In making the map accompanying this report, elevations were determined on the top of the first Wall Creek sand with plane table, telescopic alidade, and rod. Dip readings were measured on this sandstone and on the overlying Cody shale as shown on the map. On the basis of this information and the position of the faults, the structure contours were drawn.

The discovery well was located on the surface axis and on the upthrow side of the north main fault.

Surface Rolling to Hilly

The surface of the Frannie structure ranges from rolling to hilly. In the northwestern part of Section 24 and the greater part of Section 23, there is the remnant of an old gravel-capped terrace approximately 150 feet higher than the heart of the structure. This terrace remnant crosses the northwest continuation of the axis and therefore obscures it for a mile or more. Beyond the north edge of this terrace the axis plunging to the northwest can be traced for a number of miles. The average elevation of the heart of the structure is approximately 4,400 feet and the terrace mentioned above is nearly 4,600 feet above sea level. The surface of the Frannie structure is drained by Sage Creek, which empties into Shoshone River, a western tributary of the Bighorn.

The earliest reference to the Frannie structure known to the writer is in United States Geological Survey Professional Paper No. 53, "Geology and Water Resources of the Bighorn Basin, Wyoming," by Cassius A. Fisher, page 38, 1906, where it is stated "Northwest of Frannie there is a small anticline that exposes the sandstone of the upper Colorado formation." On Plate 3, which accompanies that report, the position of the structure is shown.

During the summer of 1914, Homer Lamb and associates drilled two comparatively shallow wells on the Frannie structure to test the oil and gas possibilities of the light oil bearing sands of the region, but without success. The deeper of these wells was drilled near the center of the south half of the SE NW of Section 25-58-98 (No. 3 on map) to a depth of 1,088 feet and is believed to have penetrated 10 feet into the Greybull or Dakota sandstone.

No Oil or Gas

No showings of either oil or gas are reported from this well. The other shallow well was located in the SE cor. SW SW Section 24, a few hundred feet north of the discovery well. No specific information is obtainable regarding this well except that it reached a depth of around 800 feet and obtained no shows of oil or gas. This well is No. 19 on the map.

Another well was drilled slightly less than 2 miles southeast of Frannie, in the SW cor. SE Section 6-57-97, near the crest of the Sage Creek structure, a southeast continuation of the Frannie line of folding, by the Decker-Collins Oil Co. in 1920 or 1921. This well reached a total depth of 1,320 feet which depth is 185 feet below the top of the Dakota or Greybull sandstone. No oil or gas shows were encountered by the drill to this depth, according to reports. At the present time the Prairie Oil & Gas Co. is drilling a well to test the Embar, Ten-

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SION OF DEVELOPMENT AND PRODUCTION ENGINEERING, TULSA, MAY 28-29

New Shallow Oil Field in California

Expect 20,000 Bbls. Daily Production Within 60 Days. Possibility of Price Reduction Unless State's Production Is Reduced

By L. P. Stockman

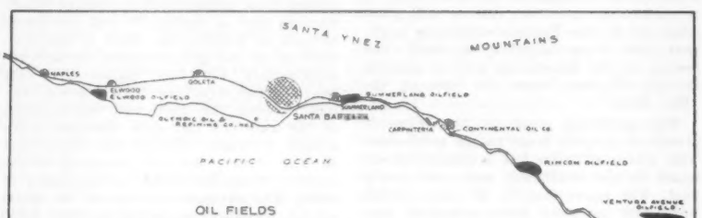
LOS ANGELES, Calif., May 25.—Another new oil field was opened up in California when the Olympic Oil & Refining Co. brought in its No. 1 Mesa at Santa Barbara flowing 1,550 bbls. of clean 23.6 gravity oil and 800,000 feet of natural gas daily from 2,438 feet. This new well, located up on the mesa land about 2 miles southwest of Santa Barbara and approximately one-half mile back from the ocean, was spudded in February 26, 1929, and completed May 21 following a delay of several weeks because of defective casing and a temporary enforced idleness pending the rezoning of adjoining acreage by the Santa Barbara City Council after spud had been made. No. 1 Lomas, as the new well is also known, is located on Lot 19, Block M, Palisades tract and is situated on a terrace which has an elevation of about 100 feet above sea level. The Olympic's discovery well is in the midst of an intensively subdivided town lot area with most of the lots running around 75 feet in width and approximately 100 feet in depth. It is needless to say a highly competitive drilling campaign can be anticipated immediately, especially since these wells can be drilled from spud to completion in about 5 or 6 weeks at a total cost of not to exceed $35,000.

The rapidity with which these wells can be finished and the large production secured has sent drill sites skyrocketing as operators feel justified in paying substantial premiums for favorable locations where the cost factor is so small. There is no close-in acreage available in this new field as every piece of property has been leased up for several months. Town lots which could have been purchased in fee for $1,000, however, can still be leased around the well for a cash bonus of $5,000 and a royalty of anywhere from 20 per cent upwards. The Santa Barbara Field, as this new district will probably be designated, is located south of the Lavigia fault and lies within the corporate limits of the city of Santa Barbara. The prolific Elwood Field, opened up by the Barnsdall Oil Co. several months ago, is about 10 miles almost due east of the discovery at Santa Barbara. The Summerland Field, where production has been secured out in the open ocean for a number of years, lies about 7 miles east of the latter district with the Rincon Field of Ventura County 15 miles farther southeast along the shore line.

May Mean Another Field

The 20-mile interval between the Summerland and Rincon Fields may yield another new oil or gas field in the not far distant future, as the Continental Oil Co. is prospecting some excellent looking acreage at Carpenteria where the company's initial wildcat blew in as a large gasser a few months ago. This well, which killed two or three men during one of its demonstrations, had to be shut in because of the inability to control gas as soon as the heavy fortified rotary mud was removed from the hole. The Continental has started a second test in this area and work will no doubt be watched with interest because of the heavy gas pressure encountered in the initial test and the possibility of opening up another new field at this point. The first well did not show any great evidence of resulting in oil production but the character of natural gas produced and the proximity of oil bearing outcrops make the outlook exceedingly promising.

The General Petroleum Co., a subsidiary of the Standard of New York, in addition to its leaseholds in the town lot section, holds a lease on the Oliver property located right on top of the new structure at Santa Barbara and therefore stands to benefit more than any other company as a result of the Olympic's discovery. The theoretical axis of this new field bisects the General Petroleum's 14-acre lease in a northwest and southwest direction. It might not be amiss to mention that the new Santa Barbara



Field will undoubtedly be rather limited in scope, altogether every indication points to the development of substantial production at a minimum cost. The formation is of Miocene age and should yield a sweet highly desirable refining crude if the Vaqueros production is in any way similar to that being developed by the Barnsdall at Elwood. In addition to the General Petroleum, the Union, Standard and Olympic also have potentially productive acreage under lease east of the subdivided area in addition to their respective holdings in the town lot section. The Union has a 9-acre tract adjoining the General Petroleum's holdings on the east while the Olympic Oil Co. has a 15-acre parcel under lease due south. The Standard has some acreage in the eastern end of the structure adjoining holdings of the Barnsdall.

Rush New Drilling

The theoretical axis of the Santa Barbara structure plunges out into the ocean just east of the Government lighthouse which is located on a 10-acre plot in the extreme eastern end of the structure which cannot be leased or developed. Companies having acreage adjoining the Government lighthouse holdings, General Petroleum, Union, Standard and Olympic, will naturally drain this property and consequently show a much larger ultimate recovery than those operating exclusively in the town lot section in the western end of the structure where competitive drilling will prevail. The Olympic, which recently paid a cash bonus of $5,000 for a lease on the Santa Barbara school site of 2 acres, has already tentatively staked three new locations and will undoubtedly prosecute early work to secure flush production before other companies get into action. That the Exeter Oil Co. is also stepping on the ball is evidenced by rig material being on ground for No. 1 Hill, No. 1 O'Brien and No. 1 Lamb, all of which are within a few hundred feet of the discovery. George F. Getty, who holds a lease on ten lots 750 feet south of the Olympic well, Union Oil Co., General Petroleum, Plymouth Oil Co., H. R. Macmillan, Standard and Pacific Western are all expected to start at least one new well within 10 days. Leasing in the town lot section adjoining the Olympic's discovery has continued at a brisk rate since this new well came in and it is believed at least 15 projects will be under way within two or three weeks. The Continental Oil Co. acquired several drill sites a short time ago within a few hundred feet of the Olympic's new well

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Natural Gasoline Men Elect Lederer

Chosen President of Natural Gasoline Association of America at Close of Annual Convention. Two New Vice Presidents

Dr. E. R. Lederer, vice president of the Texas Pacific Coal and Oil Co., Fort Worth, was elected president of the Natural Gasoline Association of America on the final day of the convention which was held in Tulsa May 21, 22 and 23. He has been active in the work of the association for several years serving as vice president and director during the past two years.

Dr. Lederer is widely known in technical circles both in the United States and foreign countries. Born in Vienna, Austria, he studied both chemical and mechanical engineering graduating from the University of Heildelberg. He also attended the University of New York.

He was connected with the Standard Oil Co. for sixteen years spending part of the time in Rumania. Later he was employed by the Atlantic Refining Co. and the Galena-Signal Oil Co. He was in charge of construction for a refinery built in Mexico. He also built and operated a refinery at Southampton, England.

For several years he has been vice president in charge of manufacturing for the Texas Pacific Coal and Oil Co. In

(Continued on Page 72)

Dr. E. R. Lederer
Vice President, Texas Pacific Coal & Oil Co.

Emby Kaye
General Superintendent of Natural Gasoline Plants, Skelly Oil Co.

A. J. Schlosser
General Superintendent of Natural Gasoline Plants, Barnsdall Oil Co.

Dynamometer Gives Important Data

Makes It Possible To Determine Loads on Rods, Unit Stress, Length of Plunger Stroke, Velocities of Plunger, Etc.

By Paul Williams
Pure Oil Co., Production Engineering Department

Tests and experiments conducted by members of the Pure Oil Co., production engineering department and H. E. Schafer, of the company's production department have yielded detailed information regarding conditions encountered in deep well pumping, making it possible to effect adjustments in length of stroke, operating speed, counterbalancing, etc., to obtain the maximum efficiency from the pumping equipment and to determine equipment to operate within the limitations of allowable stresses.

A recording dynamometer was constructed, illustrated in Figure 1. It consists of an oil-filled cylinder imposed between the walking beam and the polished rod in such a manner that the polished rod load rests on the fluid in the cylinder. The variation in load on the rods results in corresponding variation in compression of the fluid. The pressure of the fluid is recorded by one of the standard types of engine indicators.

The major parts of the indicator are a piston, actuated by the varying pressure exerted by the fluid in the dynamometer cylinder; an arm or lever, upon which a pencil or marker is mounted, actuated by the movement of the piston; and a spring, which retards the movement of the piston.

The relation of the area of the piston to the strength of the spring is such that, when using a "50-pound" spring, the pencil or marker will move upward 1 inch for each increase of 50 pounds' pressure per square inch of the fluid in the dynamometer cylinder. The pencil moves in a vertical line. Therefore, in order to record the variations in load throughout a pumping cycle, the indicator card is mounted on an oscillating drum which causes the card to move in a plane at right angles to the plane of movement of the pencil.

Drum Actuated by Walking Beam

The drum is actuated by the movement of the walking beam, with the result that the rod loads are recorded on the card in the form of an oscillating curve. The load at any point in the cycle is equal to the height of that point in inches above the zero or atmospheric line, times the nominal value of the spring (such as "50 pounds," "80 pounds," etc.); times the area of the dynamometer piston (200 square inches).

Due to the low compressibility of fluid the movement of the dynamometer piston is very slight; some difficulty was encountered in retaining the fluid above the piston and at the same time avoiding a considerable element of inefficiency of the apparatus due to friction of the piston packing against the walls of the dynamometer cylinder.

A short lipped leather cup fixed to the top of the piston reduced the friction to a negligible minimum and satisfactorily eliminated leakage. No other piston packing was used. (Total piston clearance .015 inches.)

The piston rod should be packed with soft packing and after the weight of the rods is on the apparatus the packing gland should be carefully adjusted to reduce the friction in the stuffing box to a minimum, without allowing fluid to escape.

The leather cup and method of packing stuffing box are important factors in the successful operation of this type of dynamometer, as dynamometer friction would reflect an error directly as its magnitude. The information obtained from the indicator cards made with this instrument has been indispensable in making an analysis of existing pumping condition, and in arriving at the conclusions in this report.

A number of deep wells have been weighed, most of them at speeds ranging from 17 to 26 revolutions per minute, inclusive. Prior to that time detailed published matter relative to analysis of indicator cards of rod loads was limited; consequently, the ability to interpret the cards properly was a gradual development, the various steps being subsequently verified by field tests.

Calculations show that the variations in load on the rods are directly related to the difference between the velocity of the pump plunger and the velocity of the polished rod, and that the non-conformity of plunger velocity to polished rod velocity is of such extent that the movement of the polished rod is sometimes in the opposite direction to the movement of the plunger. These findings are graphically illustrated in Figure 2.

From the indicator card the amount of polished rod travel between any two points in the pumping cycle may be calculated; also, the difference in load between these two points may be determined. An increase or decrease in load results in corresponding stretch or contraction of the rods. Therefore the movement of the plunger is equal to the movement of the polished rod plus or minus an increment due to contraction or stretch of the rods.

Card "B," Figure 2, was made at a 4,000-foot well equipped with 1,000 feet of seven-eighth-inch and 2,700 feet of three-fourth-inch rods and operating at twenty-two and one-half 42-inch strokes per minute. Based on a modulus of elasticity of 30 million and .6013 square inches and .4418 square inches cross-sectional area of seven-eighth-inch and three-fourth-inch rods respectively, a 1,000-pound load increase or decrease (below elastic limit) will cause this string of rods to stretch or contract approximately 3 inches (at any point in the pumping cycle where the indicated load is greater than the dead weight of the rods).

Progressive Loads

The curve JADCDE represents progressive loads through the upstroke of the polished rod while EFGHIJ indicates the loads in the downstroke. During the

(Continued on Page 154)

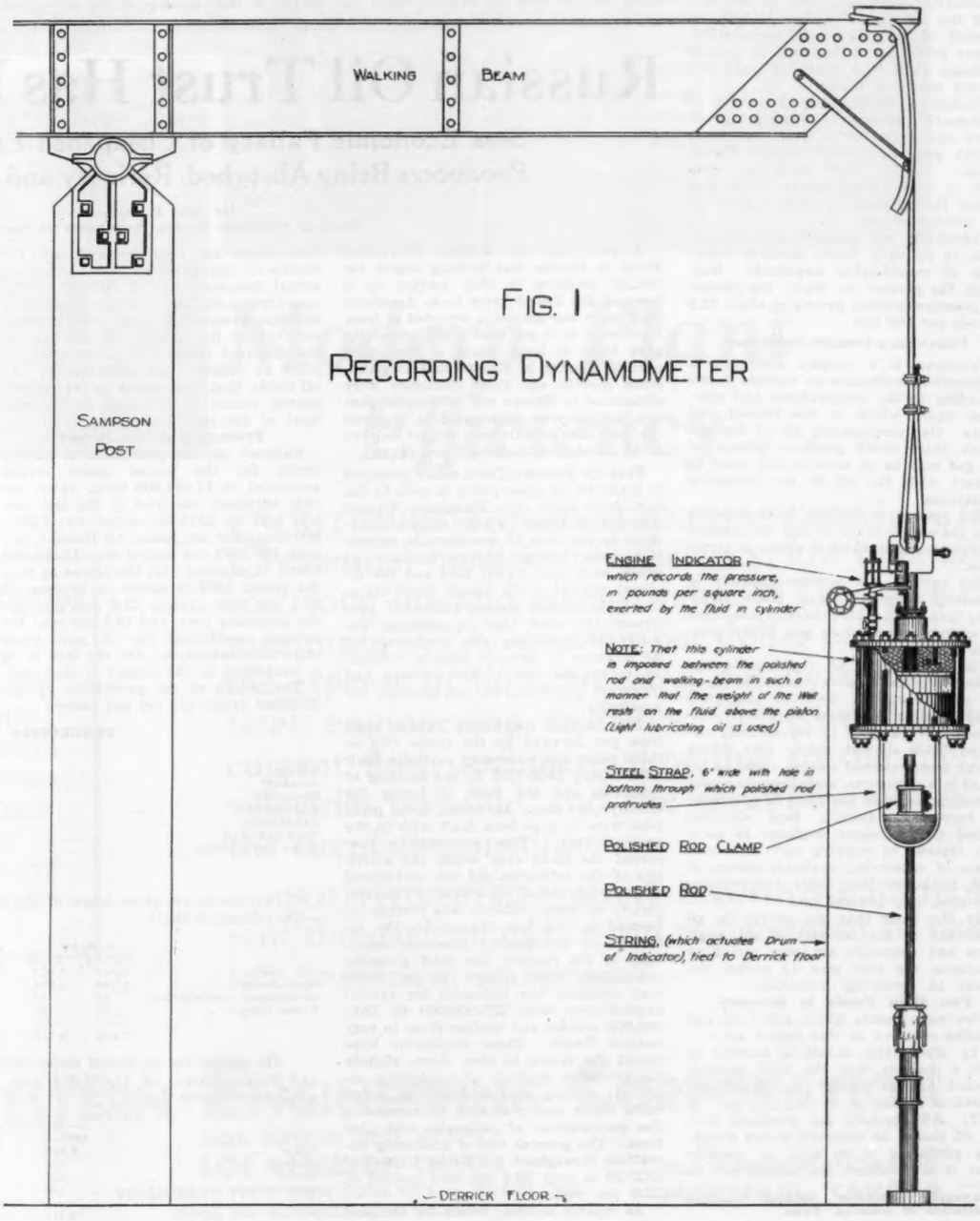

WALKING BEAM
SAMPSON POST
ENGINE INDICATOR which records the pressure, in pounds per square inch, exerted by the fluid in cylinder
NOTE: That this cylinder is imposed between the polished rod and walking-beam in such a manner that the weight of the rod rests on the fluid above the piston (Light lubricating oil is used)
STEEL STRAP, 6" wide with hole in bottom through which polished rod protrudes
POLISHED ROD CLAMP
POLISHED ROD
STRING, (which actuates Drum of Indicator), tied to Derrick floor
DERRICK FLOOR

FIG. 1

RECORDING DYNAMOMETER

Natural Gasoline and Repressuring

Co-operative Operation of Gasoline Plants and Repressuring Programs Has Worked Successfully. Benefit of Unified Operations

By E. O. Bennett
Chief Engineer Marland Companies*

Oil is caused to move to wells drilled into a producing formation only by the utilization of the energy available in the formation. In the producing formations encountered the energy may be present in three forms:

(1) Potential energy due to the force of gravity.

(2) Energy due to hydrostatic pressure from a water source.

(3) Potential energy due to gas under pressure in solution and in contact with the oil.

The first source of energy is present in certain types of structures and assists in drainage where the second and third forms are not present. While gravitation drainage will help to recover some oil, it is of little importance and can be practically neglected owing to the fact that the resistance to flow is high on account of porosity and permeability. Where production is acquired by gravity drainage alone it is generally small and beyond economic limits.

Production obtained by the action of hydrostatic pressure is of major importance and exists in a large percentage of the producing areas in the United States. So far little work has been done in repressuring where water furnishes the principal motive power for the moving of oil.

Practically all subsurface accumulations of oil exist under pressure conditions of considerable magnitude. Generally the greater the depth, the greater the pressure existing, averaging about 33.8 pounds per 100 feet.

Petroleum a Complex Substance

Petroleum is a complex substance of hydrocarbon molecules in various forms according to the temperatures and pressures under which it was formed and exists. Gas accompanies all oil deposits which exist under pressure. Some of the gas may be in solution and some in contact with the oil in the producing formations.

The amount in various forms depends upon the nature of the oil and the physical conditions under which it exists in structures.

The natural gas gasoline industry is primarily concerned with those structures that produce oil primarily motivated by energy contained in gas under pressure.

The majority of all repressuring operations formerly were conducted upon old and practically depleted properties where gasoline producers were little concerned. Work done in repressuring depleted fields showed clearly that where energy from external sources could be injected into structures, useful results would be accomplished in the form of increased oil recovered. Results thus obtained caused the petroleum engineer to go a step further in working out ways and means of conserving available energy in flush fields, so that today the practice is coming into general use.

On the basis that gas energy is all important in the recovery of oil, engineers and operators are now trying to determine the best way to utilize the energy in producing formations.

Two Main Points in Recovery

Two main points which affect oil and gasoline recovery in this regard are:

(1) Production should be handled in such a manner that the least possible amount of gas energy per barrel delivered is used.

(2) All available gas produced with the oil should be returned to the formation producing it as soon as possible after it is produced and should not be sold for fuel if it can be returned for oil recovery purposes.

The principal manner of producing oil with a minimum amount of gas energy per barrel is by determining the proper production rate for each well by experimentation and observation. Gas production along with oil is chiefly governed by pressure differential between the well bore and the producing formation. This is commonly called back pressure. Where the differential pressure is kept to a minimum, the maximum amount of gas will be retained in the oil and formation, and many beneficial results will be obtained.

Keeping gas in solution by maintaining high pressures maintains the viscosity and surface tension of the oil at a minimum and as near its original state as possible. Viscosity is the principal factor offering resistance to the flow of oil through porous formations. Where the viscosity is kept to a minimum value less energy will be required to produce a barrel of oil than will be necessary where gas is allowed to escape without doing work.

Viscosity Important

Beecher and Parkhurst say, "Viscosity is the most important physical characteristic of crude which affects the rate of flow through small irregular openings of a sand. The quantity of oil that will flow through openings is inversely proportional to the viscosity, other conditions remaining constant, while the pressure required to produce a given flow varies directly as the viscosity. For example, if the viscosity of the oil should be reduced 50 per cent, twice as much would flow through the sands if other conditions remain constant, or one-half of the pressure would be required to force an equal amount through the sand."

Repressuring old and depleted fields has returned big profits on money invested for this purpose. Recent pressure maintenance operations on flush and semi-flush production have proven equally profitable and have substantiated the value of immediate work on returning gas to a producing formation. Ultimate yields of 50 to 100 per cent more than those normally recovered may be expected if proper applications are made.

The effect of repressuring and maintenance operations on the natural gasoline business will be to stabilize the market

(Continued on Page 156)

*Annual convention Natural Gasoline Association of America, Tulsa.

Russian Oil Trust Has New Policy

Sees Economic Fallacy of Cheapened Exports. Smaller Producers Being Absorbed. Refinery and Pipe Line Plans

By John H. Nelson
Formerly Petroleum Section, Department of Commerce

A year ago the Russian Petroleum Trust in Europe was booking orders for refined products in that market on a basis of the lowest price f.o.b. American Gulf ports less discounts reported at from 1 per cent to 5 per cent which naturally gave them a large share of the independent market in Europe and England. Some months ago these discounts were eliminated in Europe and within the past two months were eliminated in England the last sizable American export market to be upset by this former procedure.

That the Russian Trust seems prepared to stand by its price policy is seen in the fact that since the Petroleum Export Association began to post export quotations in the face of considerable opposition from foreign buyers Russian oil prices have been firmly held and the official journal of the Azneft Trust states that "Experience during 1926-1927 confirmed the view that to continue the policy of increasing the production of oil in order to increase exports, without an urgent solution of the refinery and transport problems, was an absolute impossibility."

This journal continues: "These problems put forward by the trusts two or three years ago were only partially dealt with during 1926-1927 by the building of refineries and the work of laying the Grosny pipe line. However, these problems were to have been dealt with in the present year. This particularly concerned the Baku area where the activities of the refineries did not correspond with the growth of the output. The complexity of these problems was further increased by the fact that under the influence of the general economic conditions of the country, the chief planning committees were obliged to cut down very seriously the estimates for capital expenditures from 239,000,000 to 188,000,000 roubles and confine them to very narrow limits. These conditions have forced the trusts to slow down slightly the intensive methods of production especially drilling, and to direct the maximum funds and attention to increasing the construction of refineries and pipe lines. The general rise of producing operations throughout the Soviet Union for 1927-28 is only 10.4 per cent instead of 23.6 per cent.

As regards drilling, which for the past three years has risen tremendously, the results do not show an increase but an actual decreased rate of drilling, chiefly exploitation drilling. It was proposed to stabilize prospecting work with possibly some slight fluctuations on the part of the different trusts. It is necessary to state as regards rationalization of the oil fields, that this, owing to insufficient grants, cannot be continued on the high level of the past years.

Production at New Record

Summed up, the production of all the trusts for the period under review amounted to 11,634,000 tons, which not only surpasses the level of the last pre-war year (in 1913 the output was 9,217,000 tons) but has passed all Russian records (in 1901 the output was 11,568,000 tons.) Compared with the preceding year the period 1927-28 shows an increase of 13.1 per cent against 23.6 per cent for the preceding year, and 18.5 per cent the average co-efficient for all past years since nationalization. On the face of it, a weakening in the output is discerned.

The details of the production by the different trusts are set out below:

Drilling Operations

Drilling practically everywhere tended in the direction of a decrease, reaching catastrophical levels in January and February, and only in March was any movement towards an increase discernible. To the many causes which brought about such a low level of drilling during the first half of the year, must be added, first of all, the very severe wintry conditions in all districts, which seriously retarded boring work. Besides this, troubles of a purely local character occurred in certain areas.

In Grosny it became necessary to stop drilling, both exploitation and prospecting, as a result of financial difficulties. In Baku a decrease in drilling was brought about by the suspension of work on Fridays, changing the terms of payment to drillers (i.e., doing away with footage, which formerly played a large part in the general pay, about 15 per cent) and finally the collapse of labor discipline.

The following are details of drilling

(Continued on Page 177)

PRODUCTION (in thousand tons)

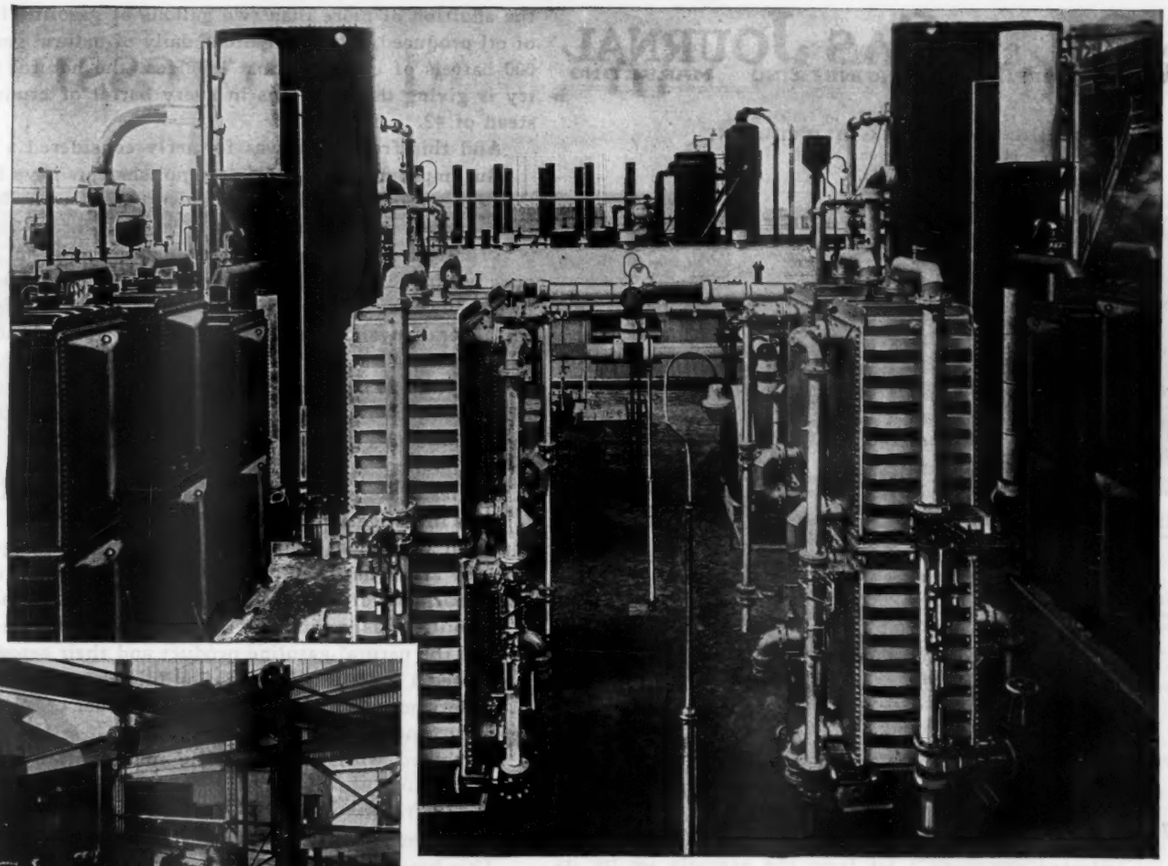
	1927-28 Planned	1927-28 Actual	1926-27	1913
Azneft	7,683	7,574	6,810	7,358
Grozneft	3,203	3,576	3,022	1,207
Embaneft	273	252	254	98
Kubcherneft	98	106	82	79
Uzbekistan	35	28	22	22
Turkmenistan	..	3	10	131
Baku hand dugs	67	90	87	311
	11,358	11,634	10,287	9,217

Particulars are given below of the output according to the various categories of wells (thousand tons).

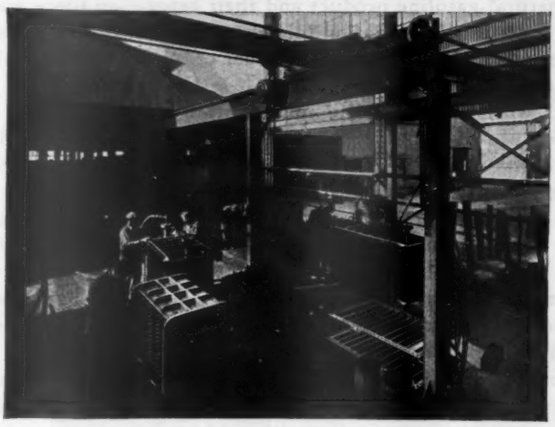
	Baku 1927-28	Baku 26-27	Grosny 27-28	Grosny 26-27	Emba 27-28	Emba 26-27	Total 27-28	Total 26-27
Old wells	5,643	5,032	2,720	1,920	198	197	8,561	7,149
New wells	1,796	1,574	805	1,013	54	53	2,655	2,640
Re-entered exploitation	27	87	1	14	..	4	28	105
From repair	15	35	..	..	..	..	15	25
	7,481	6,718	3,526	2,947	252	254	11,259	9,919

The output for the period under review of the allied trusts (excluding Uzbekistan and Turkmenistan) of 11,508,000 tons, gives the following picture as regards the methods employed.

	Mechanical 1927-28	Mechanical 26-27	Gushers 27-28	Gushers 26-27	Casual lake oil, etc. 27-28	Casual lake oil, etc. 26-27
Baku	5,508	5,459	1,973	1,251	93	100
Grosny	875	892	2,651	2,050	50	80
Emba	225	253	26	1	1	..
Kubcherneft	103	80	2	..	1	2
	6,711	6,684	4,652	3,302	145	182



Carefully testing equipment before shipping



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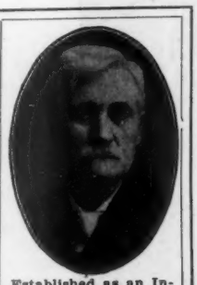
The OIL and GAS JOURNAL

PRODUCING REFINING ENGINEERING MARKETING

Published Weekly by
THE PETROLEUM PUBLISHING COMPANY
114-116 West Second Street
TULSA, OKLA.



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Six months - - - - - - - - - $3.00 One year (foreign countries) - - - $7.00

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AN EXAMPLE IN PRACTICAL RESEARCH

The oil industry can learn a lot from the example set by its youngest branch, the natural gasoline industry, which has just held its annual convention in Tulsa.

A study of the proceedings, the papers presented and the discussions, reflects the tremendous progress made in the face of an unusual handicap.

Within the comparatively brief period of 15 years the natural gasoline industry has established itself as a distinct unit in the oil business. This has been accomplished largely through co-operative action both in the manufacturing and the marketing of its product and despite the fact that through its dependence on the crude oil producer for its raw material and on the refiner for the sale of its finished product it had practically no direct control over its markets.

In manufacturing it has had to take the casinghead gas as furnished by the oil producer wherever the crude oil was found. Its plants had to adjust their production to the requirements of the oil producer and operate within the productive areas regardless of conditions. If water supply and facilities for plant operation are not at hand they must be brought there and operations must be guided by the expedience of the oil producers so as to take care of the casinghead gas as it becomes available in varying quantities and qualities.

How successfully the natural gasoline manufacturers have met these exacting conditions is indicated by the fact that whereas they were producing only 115,000 gallons a day in 1914 they have increased their output to almost 6,000,000 gallons daily.

From the marketing angle during that period they have increased their sales from an insignificant total of comparatively no consequence to supplying 11 per cent of the total gasoline requirements of the United States.

Last year the production of natural gasoline totaled 1,776,000,000 gallons and it is conservatively calculated this year it will reach two billion gallons.

The magnitude of this production can be appreciated when it is realized that this output is approximately equal to the domestic demand for all gasoline in 1917.

In this connection it is interesting to note that based on the latest available government report (March, 1929) on output it means the addition of more than two gallons of gasoline for every barrel of oil produced, 5,860,000 gallons daily of natural gasoline to 2,632,000 barrels of crude, so that in effect the natural gasoline industry is giving us 44 gallons in every barrel of crude produced, instead of 42.

And this from what was formerly considered a waste product.

But important though its accomplishments have been in production the natural gasoline industry's greatest contribution has been in co-operative research.

Whereas refiners have sat back looking with caution or suspicion on anything of a co-operative nature lest some one might get an undue advantage, rather than accepting a give-and-take attitude for the general advancement, the two natural gasoline associations have within the past few years got clear away from that idea.

The Natural Gasoline Association of America, a national organization composed largely of manufacturers in the Mid-Continent, has just completed a three years' research program in which it employed an outstanding authority to conduct an investigation into the characteristics of its product as a constituent of motor fuel.

This investigation was carried on in co-operation with the laboratories of individual companies, and it is no exaggeration to state that the result has been one of the most important contributions to the remarkable progress of the natural gasoline industry.

Simultaneously with this investigation of the chemical constituents of the natural gasoline product and their separation there was conducted a practical investigation into the performance of natural gasoline when used as a straight motor fuel or when blended with refinery products.

Combined with this scientific investigation there has been a very effective use of publicity of various kinds which has made known the results of this investigation to refiners and jobbers who are the principal customers of the natural gasoline industry.

This has brought about a greater appreciation of the importance of volatility in motor fuel obtainable with natural gasoline and its relationship to ease of starting and acceleration in car performance.

It has been shown that it is possible to use as much as 50 per cent of the ordinary commercial grade of natural gasoline in motor fuel with satisfactory results.

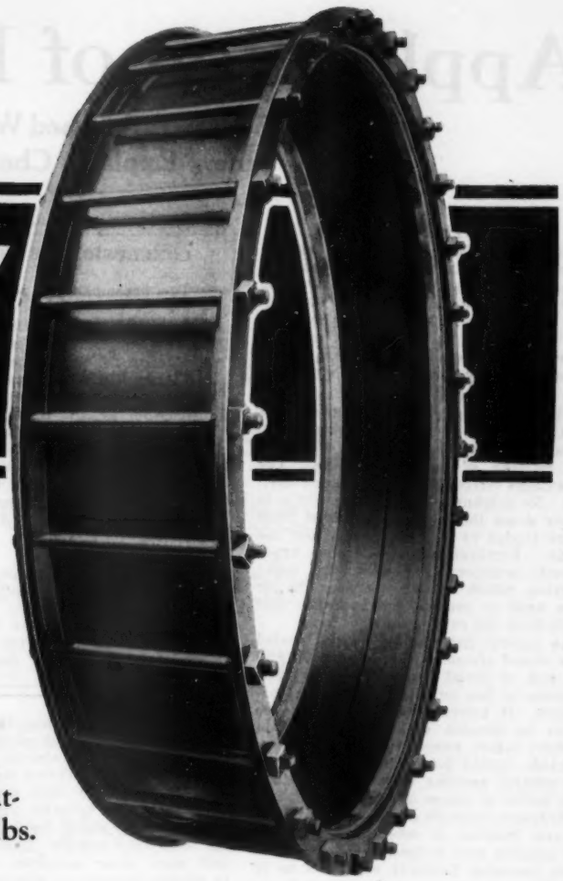
This research and publicity has effectively overcome the prejudice of a few years ago against natural gasoline due to the early manufacturers knowing practically nothing about the proper manufacture of their product and still less about its effective utilization. As a consequence of those early practices where natural gasoline was often mixed with kerosene public resentment was so aroused that for a time it seemed likely to overwhelm the whole industry until research and publicity developed truly scientific manufacture and the assurance of a really superior product.

California Natural Gasoline Association, without any budget for an extensive outside research program such as undertaken by the Natural Gasoline Association of America, resorted to the simple method of exchanging information and making co-operative studies of various phases of the manufacturing problems, including methods of testing with general benefit. Some very important discoveries have resulted, some of which have already been profitably applied, while others await further investigation and development with promise of definite advantage to the entire petroleum industry.

Viewing what has been accomplished through research by the natural gasoline industry as a whole, including the development of liquefied gas, aviation gasoline, and the general program for the evolution of new products and new markets, within a very few years, the other branches of the oil industry may well inquire whether similar zeal in research would not prove even more profitable considering their greater opportunities and the absence of the handicaps which beset the natural gasoline manufacturers in the public prejudice against their product and their lack of control of their raw and finished markets.

If one association, the youngest in the industry, can accomplish so much of material benefit in a few years, what might be accomplished by a National Petroleum Research Institute prosecuting as vigorously a practical program for the whole industry?

Time Tested



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Application of Hypochlorite Process

Successfully Used With All Grades of Gasoline and Kerosene. Explain Chemical Reactions Involved in Uses

By S. F. Birch, Ph.D.

PART 3

In the first three articles, the development and advantages of the hypochlorite process, the preparation of the treating solutions and their application to straightrun gasoline were briefly described. In this article, it is proposed to give a short account of the application of the process to other petroleum products.

Natural Gasoline

The hypochlorite process lends itself particularly to operation in closed systems and is therefore of great value for the refining of natural gasoline. The advantages offered over plumbite are obvious. No sulphur addition is necessary to throw down the lead sulphide and there is no sludge to be withdrawn from the plant. Furthermore, if alkaline hypochlorite solutions are used, the spent solution, which is still alkaline, can be then used to remove the hydrogen sulphide from the raw gasoline.

As natural gasoline is usually treated in a closed system no air is present, and the risk of aerial oxidation of hydrogen sulphide to free sulphur need not be considered. If, however, the natural gasoline is to be blended with the straightrun product before sweetening, the hydrogen sulphide should be removed as soon as the natural gasoline leaves the stabilizer and before it comes in contact with air.

Hydrogen sulphide can be removed from natural gasoline in several ways. Soda ash solution may be used and regenerated after becoming partially saturated as in the Koppers process or caustic soda or lime water can also be used though no recovery is then possible. The use of the spent solution after sweetening by means of alkaline hypochlorite solution also gives excellent results. All of these methods find wide application.

After the removal of the hydrogen sulphide, the sweetening is generally carried out by passing the natural gasoline through a hypochlorite solution until the latter is spent. After a final soda water wash the product is finished.

The whole treatment is generally carried out continuously in a closed system consisting of a number of treating towers fitted with perforated baffles or orifice mixers. Pumps are used to circulate chemicals or renew or remove them as desired. A typical plant of this kind consists of eight towers, divided for treating purposes into four pairs. In the first and second, the raw gasoline from the stabilizer receives a thorough soda or lime wash, the alkaline solution from the second tower being passed into the first. Each of the two next towers contains water which serves to remove entrained soda before the hypochlorite treatment which takes place in the fifth and sixth towers. The hypochlorite solution in these towers is used until spent when it is renewed. Finally the gasoline receives a soda or water wash in the last pair of towers.

By using alkaline hypochlorite solutions such as, for example, calcium hypochlorite saturated with lime and passing the solution counter currently through the towers, a considerable saving in alkali can be effected. In the system described above, only six towers would be necessary, the need for washing with water between the initial alkali wash and the sweetening treatment not arising. If sodium hypochlorite is used, the free alkali present should be adjusted to leave sufficient in the spent solution for the first stage of the treatment. Blends of natural gasoline and straightrun gasoline can be treated in the usual way.

Cracked Gasoline

Until quite recently, refiners found difficulty in applying the hypochlorite process to the refining of cracked distillates owing to the "reversion" that occurred.

CONCLUSION OF SERIES

The accompanying parts 3 and 4 are the conclusion of a series of articles by Dr. S. F. Birch on the various applications of the hypochlorite process in refining and natural gasoline manufacture. Parts 1 and 2 and an introductory discussion by Dr. A. E. Dunstan and Dr. F. B. Thole appeared in the May 23 issue starting on page 190. In these articles the development and advantages of the hypochlorite process, the preparation of the treating solutions and their application to straightrun were described.

The accompanying part 3 describes the application of the process to other petroleum products. The series is concluded in part 4 with a discussion of the chemical reactions involved in the process.

The reason for this was that the solutions used for the treatment of straightrun distillates were always made as reactive as possible (often by destabilization with acid or flue gases) without rendering them actually unstable in order to bring about desulphurization in the shortest possible time. As a result when these solutions were applied to cracked products, a very rapid reaction took place and a certain amount of chlorination occurred. As soon, however, as the discovery was made that by adding free alkali to the treating solution, the action was so slowed that only sweetening, and in consequence, very little desulphurization occurred, while the tendency to form chlorine compounds disappeared, the application of the hypochlorite process to cracked distillates became possible. At the same time it was found that the hypochlorite solutions were without the property of polymerizing the gum-forming constituents present, so that the hypochlorite sweetening treatment had perforce to be followed by acid and redistillation. The hypochlorite solution, in fact, acted solely as a sweetening agent replacing the plumbite generally used for the purpose. Although by using alkaline hypochlorite solutions with cracked products practically no chlorination takes place, as a further precaution and also to economize in chlorine, the sweetening treatment is cut down to the absolute minimum required.

The products obtained are excellent and compare favorably in every way with the corresponding products obtained with the aid of plumbite.

Procedure

The method of applying alkaline hypochlorite solutions in the refining of cracked distillates follows the same lines as standard plumbite acid practice.

The raw distillate after a preliminary soda wash to remove traces of hydrogen sulphide, is given the lowest possible hypochlorite treatment required to give a sweet product; generally 0.25 to 2.0 gms. per liter of distillate is used, depending on the original cracking stock. This treatment is followed by a thorough water wash to remove trace of entrained hypochlorite which, if they came in contact with acid would cause trouble through the liberation of chlorine. The acid treatment follows and is preferably given in two stages, acid sludge from a previous batch being employed for the first stage to take up traces of moisture. Finally, after a water wash and very thorough soda wash to hydrolyze, as far as possible, any sulphuric esters formed, the product is distilled to the desired end-point. The distillate generally requires a small soda wash to improve the odor.

If the treatment has been carried out properly, the gasoline refined in this way has a pleasant odor, is water white in color and contains no gum. It is also negative to the doctor test and will give a good copper dish test.

It should be noted that as redistillation forms part of the refining scheme, the precautions necessary when treating straightrun gasoline to insure that no aerial oxidation of hydrogen sulphide occurs are not needed. In order, however, to economize in chlorine, the initial soda wash is advisable, because besides removing hydrogen sulphide, part of the mercaptans are removed so that less chlorine is needed to oxidize them.

The alkaline hypochlorite treating solution is prepared by diluting a 1 N stock solution of hypochlorite, saturated with lime, to 0.2 N by means of one-half per cent caustic soda solution. A precipitate of lime is formed but it has been found that this gives no trouble; in fact, it appears to aid in the refining. If sodium hypochlorite is used, it should be roughly 0.2 N and contain approximately 5-6 gms. caustic soda per liter.

The object in giving the acid after the sweetening treatment is to remove any traces of oxidation products, the acid acting both as a solvent for these substances and as a polymerizing agent for gum-forming hydrocarbons. The method described above has been applied with considerable success to the refining of cracked distillates produced by Dubbs and Cross cracking units from Persian and Trinidad cracking stocks.

The following table shows the acid and hypochlorite treatments as well as the results obtained, when refining several typical pressure distillates.

Cracking stock, plant—	Press S.G.	Dist. sulphur	Treatment: chlorine gm./liter	Treatment: acid per cent	Finished S.G.	Gasoline sulphur
Persian, Cross	.736	.17%	0.6	.25	.742	.04%
Gas oil	Gum 12 m.g. per 100 cc.			Color W.W.		
Trinidad, Cross	.812	.12%	1.28	.5	.800	.04%
Gas oil	Gum 4 m.g. per 100 cc.			Color W.W.		
Roumanian, Autoclave	.754	.09%	1.0	.5	.736	.02%
Gas oil	Gum nil.		Color W.W.			
Trinidad, Autoclave	.776	.11%	.5	.5	.763	.05%
Fuel oil	Gum nil.		Color W.W.			
California, Autoclave	.788	.10%	.75	.5	.785	.01%
Kerosene	Gum nil.		Color W.W.			

All of these products possessed excellent odors and were negative to doctor test.

Although in the methods described above the hypochlorite sweetening treatment is given before the redistillation, this is not absolutely necessary, excellent products also being obtained by giving the sweetening treatment after the distillation. In this way a very considerable saving in chlorine is effected for not only has a smaller quantity of gasoline to be sweetened—the acid polymerization products and heavy ends from the pressure distillate being left as bottoms in the still—but the acid before the distillation helps very materially in the sweetening. A final soda wash is, however, necessary to remove any traces of chlorine-containing substances which may have been formed and which, in the methods first described, are left in the bottoms. The actual method to be used for any particular pressure distillate cannot be decided without laboratory tests as the best order of treatment depends on the particular characteristics of the distillate to be refined.

Counter-Current Treatment

It is obvious that by applying the first described treatment in a counter-current continuous washing plant a considerable saving in chemicals can be effected. Thus the spent alkaline hypochlorite wash is used for the initial alkali (caustic soda) wash while a saving of acid always results from continuous treatment.

Kerosene

The treatment of a kerosene derived from a sulphurous crude oil generally involves an acid treatment, which effects a partial desulphurization, followed by a sweetening and decolorizing treatment in the form of agitation with or filtration through some adsorptive earth such as fullers earth or bauxite. Actually, of course, many adsorptive media will sweeten, partly desulphurize and decolorize without any preceding acid treatment, the product being quite marketable. Such high treatment losses are incurred owing to the liquid remaining on the large quantity of material required, that a preliminary acid treatment is generally used in order to minimize the amount of adsorbent earth necessary.

On the other hand the adsorptive earth treatment cannot be entirely dispensed with because the sulphuric acid esters formed must be eliminated or the kerosene will discolor the lamp glasses and cause charring of the wick besides rendering the oil corrosive and unstable. These substances are readily removed by adsorptive earths. Again, such a high acid treatment is generally required to sweeten normal sulphurous kerosene, that a preliminary acid treatment followed by a treatment with fuller's earth or bauxite is the most economical method of refining. Of course, if the sulphur dioxide treatment is given to reduce the content of aromatic hydrocarbons, the acid treatment necessary is very considerably reduced but the final adsorptive earth treatment is still necessary.

When the part actually played by the acid is carefully examined, it is found that the acid merely reduces the load on the adsorptive earth by effecting partial sweetening while at the same time reducing the sulphur content. This part can equally well be played by alkaline hypochlorite. The treatment is applied in exactly the same way as when treating cracked distillates with the exception that, if the kerosene is a straight cut from the crude oil, soda washing to remove hydrogen sulphide should take place before aerial oxidation can occur. This prevents the formation of free sulphur which, if present in kerosene, causes charring of the wick and bad burning. It should be noted that as neither acid, hypochlorite or any adsorptive media can remove free sulphur once it is formed, it is very important to prevent its formation.

The alkali-washed kerosene is given the minimum alkaline hypochlorite wash required to sweeten it and is finally filtered through bauxite or agitated with fuller's earth. This process is used in the Persian refineries of the Anglo-Persian Oil Co., where as mentioned elsewhere, acid is not readily obtainable. By means of it, excellent products are obtained and at the same time a very considerable saving

(Continued on Page 168)

The average refiner is selling or storing fuel oil It's a product he can't use He loses money on every barrel he sells It costs him still more on every barrel he stores

Many refiners using the Dubbs Cracking Process are buying fuel oil and profiting by the other fellow's loss

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Late News from the Field

KANSAS

The production of the Gypsy Oil Co.'s No. 1 Williams, Section 16-35-3w, Sumner County, for Sunday, May 26, was 1,362 bbls., and for Monday, May 27, 1,340 bbls.

Shell Petroleum Corp.'s No. 1 Lygrisse, Section 15-26-2e, Sedgwick County, produced on May 26, 1,973 bbls., and May 27, 2,236 bbls., making this wildcat well the largest single producer in the State.

Wilcox Oil & Gas Co.'s No. 1 Schwartzkopf, NE cor. NW SW, Section 27-17-17w, Rush County, had a sandy dolomite at 3,573-97 feet, dry, and was reported drilling in granite at 3,603 feet. The county has been receiving a lot of attention, and eight wildcat wells are drilling in widely separated districts.

A new well that has its first showing of oil is the Gypsy Oil Co.'s No. 1 Hamant, SW NW, Section 14-26-2e, Sedgwick County. It had the top of the Simpson dolomite at 3,163 feet and the first showing of oil at 3,164 feet, and will be drilled in during the first part of the week. The well is an offset to the Shell Petroleum Corp.'s No. 1 Lygrisse, in Section 15-26-2e, Sedgwick County, that is producing better than 2,000 bbls. a day. The crew on the Gypsy Oil Co.'s well made a record run, In 13 days' drilling time they made 3,051 feet of hole.

OKLAHOMA

Houston Oil Co.'s No. 1, NW SW SW Section 19-20-7, Pawnee County, Oklahoma, filled up with oil and was running over the top of the casing from a break in the Mississippi lime at 3,065-68 feet. The well is a wildcat, 3 miles from any oil production. While the owners were intending to make a Wilcox sand test before the well showed oil in the lime, it will be given a production test at its present depth. The oil is 38 degrees gravity.

W. B. Pine's No. 1 Bean, SW cor. NE SW Section 13-7-6, Seminole County, in the southeast extension to the Little River Pool, is estimated to be making between 60,000,000 feet and 70,000,000 feet of gas from the Gilcrease at 3,356-99 feet. While the 8-inch casing was swinging in the hole there was a possibility that the gas might be coming from the Viola lime at 4,134-65 feet, the total depth.

Reynolds and others' No. 1 Townsite, Block C, Highland Addition, Section 18-6-4, Pottawatomie County, is reported to be drilling in Woodford chert at 3,840 feet, having the top at 3,744 feet. The discovery well of the Simms Oil Co. in Section 19-6-4 is producing from the Viola lime, the total depth being 3,699 feet.

Tom Slick, Inc., No. 1 Bledsoe, NW SW NW Section 20-6-4, Pottawatomie County, had the top of the Viola at 3,630 feet, and the first show of oil at 3,663 feet, total depth is 3,700 feet. The first 16 hours' gauge was 720 bbls. The well is a southeast offset to the discovery well of the Simms Oil Co. in the SE NE NE Section 19-6-4.

Simms Oil Co.'s No. 1 Alexander, SE cor. Section 18-6-4, Pottawatomie County, a quarter of a mile north of the discovery, had the top of the Viola lime at 3,817 feet and was landing 8-inch casing at 3,823 feet. The same formation is 177 feet lower in this well than in the discovery well.

Mid-Continent Petroleum Corp.'s No. 1 Smith in Section 5-7-7 had the Wilcox sand at 4,222-32 feet, with an initial production the 16 hours of 3,550 bbls. The lease is making better than 11,000 bbls. of oil a day from five producing wells.

Simms Oil Co.'s No. 1 Laster, SE NE NE Section 19-6-4, Pottawatomie County, produced on Tuesday, May 28, 3,225 bbls.

Prairie Oil & Gas Co.'s No. 1 Laster, NE SE NE Section 19-6-4, Pottawatomie County, on Tuesday of this week produced 2,075 bbls. of oil.

High Spots in Field News

MISSISSIPPI

Core barrel showing of oil in Yalobusha County test.

GULF COAST

New salt domes indicated in Terrebonne Parish, Dog Lake Bayou and Cedar Bayou.

MICHIGAN

State geologist expects wildcatting to spread all over State, particularly in western section.

NORTH LOUISIANA

Gas show in State's deepest hole, Dixie company's Caddo Parish well testing 192,000 feet of gas.

TEXAS PANHANDLE

Magnolia company brings in producer flowing 9,725 bbls. in Gray County and The Texas Company brings in 9,000-bbl. well with 29,000,000 feet of gas.

SOUTHWEST TEXAS

Refugio oil field showing more promise. Lower formations seem to cover more acreage.

Blanco County well estimated 40-bbl. producer.

KANSAS

Production of State is steadily advancing towards the old peaks of 1918 and 1928, with quality of oil improving.

Western side of State continues promising.

OKLAHOMA

Tests in critical spots running low on structure and do not correlate with formations found in discovery wells.

Seminole production shows increase of 18,685 bbls. over previous week.

ROCKY MOUNTAIN AREA

Test in Pearl district, Lea County, New Mexico, shut down for connections, with 2,500 feet of 36 gravity oil in hole.

Frannie district in Park County, Wyoming, getting attention.

WEST TEXAS

New shallow pool 9 miles northwest of Fort Stockton in Pecos County.

Jones County well gets oil in fourth pay.

World's deepest well, Reagan County, makes three new highs in week; latest 2,597 bbls. and 23,770,000 feet of gas.

Good oil show in Irion County test.

NORTH TEXAS

Young County well makes two flows; may open new pool northwest of Graham.

Coleman County got its biggest well, 9 miles northwest of Coleman, initial production of 200 bbls. increasing to 2,000 bbls. when drilled two feet deeper.

CALIFORNIA

State production still 100,000 bbls. in excess of 1928 average, although 40,000 bbls. below 1929 high. Expected curtailment movement will show more results in May production.

Umpire F. M. van Deinse issues general order effective June 1 involving curtailment of 199,394 bbls. daily crude oil production in the State.

Further Curtailment Of California Crude Is Ordered by Umpire

LOS ANGELES, Calif., May 28.—Umpire F. M. van Deinse has issued a general order, effective June 1, involving the curtailment of 199,394 bbls. in the daily production of oil in California.

The curtailment order is based on the average daily potential production in the period between June 1 and June 15. The order embraces all wells in the State, exclusive of wells brought in since May 21. The previous order, made effective May 15, called for the curtailment of 190,264 bbls. per day.

The latest order is based on a new plan of arriving at potential production developed by the general engineering committee, and contemplates that the potential production shall be taken to be the average estimated unrestrained production of wells, and the allowable production shall be based on wells according to the volume of the potential production regardless of location.

HUMBLE MAY CONFINE ITSELF TO THREE STATES

HOUSTON, Tex., May 25.—It is reported the holdings of Humble Oil & Refining Co. in Louisiana have been sold to Standard Oil Co. of Louisiana, which will end Humble's development in that State. It is understood the sale was made owing to the fact that Humble had no pipe lines in Louisiana and would be operating at a disadvantage.

Humble Oil Co., it is said, desires to confine its operations to Texas, New Mexico and Arizona, which would mean its ultimate withdrawal from Oklahoma, leaving that State to Carter Oil Co., another Standard Oil Co. of New Jersey subsidiary.

A.P.I. BOARD APPROVES GASOLINE SPECIFICATIONS

NEW YORK, May 28.—The Technical Committee of the American Petroleum Institute today recommended to the board of directors certain changes in gasoline specifications. The board approved the recommendations and instructed the Technical Committee to submit them to the Technical Advisory Board of the Federal Specifications Board in Washington tomorrow preparatory to their formal submittal to the Specifications Board June 11.

The suggested changes include the adoption of a grade of gasoline known as Fire Engine gasoline to take the place of Motor Fuel V grade previously recommended. However, this is simply a change in name, as the original specifications under the Motor Fuel V will be included under the new name with the addition that an endpoint not to exceed 401 degrees Fahrenheit will be required.

The only revision suggested in the originally proposed U. S. Motor gasoline specifications is the inclusion of the provision that when the atmospheric temperature is below 32 degrees Fahrenheit the 10 per cent point on the distillation must not exceed 149 degrees Fahrenheit. Some refiners feel this will call for an exceptionally volatile grade of gasoline and the use of more than the normal amount of natural gasoline in the blend.

JOHNSON'S NEW POSITION

Charles B. Johnson, formerly Tulsa city salesman for the Parkersburg Rig & Reel Co., is now engaged in like work for the Tulsa Rig, Reel & Manufacturing Co.

STANDARD LEASES STATIONS

LOS ANGELES, Calif., May 25.—The Standard Oil Co. of California has leased a large number of its filling stations in this city and territory to the Southern Gasoline Stations, Inc. Approximately 250 stations are said to be involved in the leasing transaction.

The Southern Gasoline Stations was recently incorporated with S. R. Rodriguez, formerly associated with the Standard of California, as president. The Standard company is not interested financially in the company.

The leasing of the large number of stations to one company marks another change in the Standard marketing policy in this territory. The company has been trying out a plan of leasing its stations to the individuals which operate them. This is said to have proved unsatsifactory in this territory.

HIRTH, VICE PRESIDENT

CHICAGO, May 23.—Charles F. Hirth, who has been connected with the well known oil distributing concern of Hughes & Co., has been elected vice president of the company.

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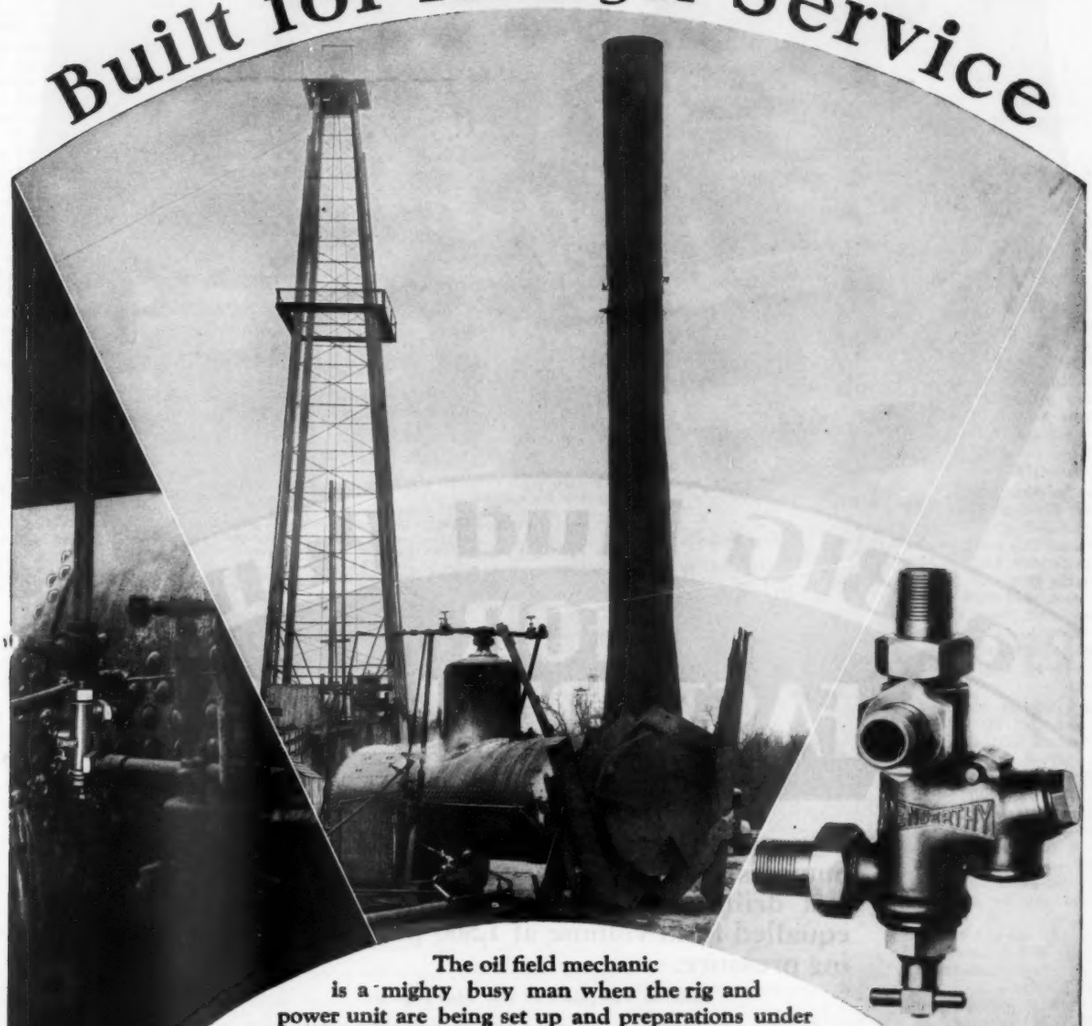

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The Republic Supply Co. of Calif.—Stores in all Principal California Oil Fields

GARDNER-DENVER

Tests in Critical Spots Running Low

Both in Townships 6-4 and 7-4, Near Discovery Wells, Markers Are Below Expected Depths. Seminole Production Up

By W. A. Spinney
Staff Correspondent, Oklahoma Fields

While the Oklahoma Corporation Commission has lifted the proration order affecting the production of crude oil in the State, and given Oklahoma operators permission to increase their average daily production to 725,000 bbls. a day, no change has been made in the operators' agreements among themselves to develop wildcat leases and new pools in a conservative manner. Co-operation and curtailment of drilling around wildcat wells and new pool openers in several parts of the State continue, with no sign that any change will be made that will result in a return to the old pell mell methods of drilling many wells at once.

An example of curtailment of production is shown in the well that was completed by Shaffer Oil & Refining Co., Sinclair Oil & Refining Co., R. A. Irwin, Keister-Manning, and others' No. 1 Kelly, SE cor. NE NE, Section 2-7-4, Pottawatomie County, which had an initial production of 2,460 bbls. and was ordered pinched in to 100 bbls. a day until some of the offsets have reached the same producing level, the Hunton lime. It means a loss of at least 75 days oil production to the discoverers.

Another example is the Community Pool development in Sections 10 and 11-9-5, Seminole County. Companies with leases in these sections joined together and are conservatively drilling one location at a time instead of rushing in with a flock of new rigs and starting all the wells at once.

The manner in which the drilling around the district in Section 18-9-6 was handled is also a good example of how conservation methods can be made effective.

A strikingly good case of this kind is the Shell Petroleum Corp.'s No. 1 Lygrisse in Section 15-26-2e, Sedgwick County, Kansas. This is a rank wildcat that has been producing for 35 days and is one of the biggest wells completed to date in the county, but the Shell Petroleum Corp. has started only two other wells and the Gypsy Oil Co., which owns two east offset leases, is drilling only two wells. The above wells are being drilled to protect the leases.

Running Low on Structure

Before the recent increase in crude oil prices there were several prospective major pools in sight in the State. During the past week in two of these prospective areas wells have been drilled to formations that are considered markers. They are running low on structure and do not correlate with the formations that were found in the discovery wells. It is apparent in the wells the Independent Oil & Gas Co. is drilling in Section 1-7-4, Pottawatomie County. Its No. 1, SW cor. NW NW, had Misener sand at 3,936 feet and Hunton 3,937-45 feet and no showing of oil. The well is an offset to the discovery well in Section 2-7-4, and is running 200 feet low on the same producing formation. The same company's No. 2 in the NW cor., Section 1-7-4, is landing 8-inch casing at 3,939 feet with no showing. It is running as low as No. 1 in Section 1. These wells are east and north of the discovery.

In the Asher district, Pottawatomie County, some of the wells are finding the Woodford from 200 to 300 feet lower than it was in the discovery well. That this formation is low, and it has always been considered a marker in the area, points to the fact that some of the drilling wells may be dry holes, when they reach the horizon in which the first well found oil. The wells that are running low are to the north and west. It also applies to some of the wells that are drilling on lots in the townsite of Asher, and to the wells in Sections 17 and 18, a quarter of a mile north.

Leasing in Northwest

Mostly due to the boost in crude oil prices the counties in the northwestern part of the State are becoming active again in the matter of leasing. Northwestern Grant County is enjoying a boom due to the recent discovery of oil by the Gypsy Oil Co., in the southern part of Sumner County, Kansas, just over the state line. Other counties in that part of the State, experiencing leasing activities are Woods, Harper, Woodward and Major.

A lot of interest is being taken in Township 26-24w in Harper County. A report received recently states that it is all under lease and core drills have been working there for some time in the hope of finding structure so that one or more wells may be started by summer.

Seminole Production

The production of the greater Seminole Field on May 21 reached the highest since proration was lifted, when it was 394,515 bbls., while on Monday, May 27, the production had declined to 384,887 bbls. The St. Louis Field has shown the greatest decline and on Saturday, May 25, the gauge of that field was 88,726 bbls. from 358 wells.

Average daily production of the Seminole Field for the past week was 300,415 bbls. This shows an increase of 18,685 bbls. over the previous week. The pools that are up are Little River, Bowlegs, Seminole City, Maud and Carr City.

Most of the increase was due to shooting wells, cleaning out old producing wells, and more use of the gas and air lift.

The daily average pipe line runs from the Seminole area for the past week are as follows:

Company—	Bbls.
Barnsdall	7,327
Champlin	4,759
Continental	771
Consolidated	295
Cosden	15,456
Empire	9,742
Gulf	22,167
Independent	206
Magnolia	20,877
Oklahoma	37,240
Prairie	52,088
Producers & Refiners	2,092
Pure	2,982
Shaffer	4,348
Shell	8,494
Sinclair	30,068
Texas	17,082
Tidal	16,185
White Oak	4,673
Total	256,853
Tank cars	10,658
Grand total	267,511

The production of the Independent Oil & Gas Co.'s No. 1 Rhodd, NW cor. Section 16-7-4, Pottawatomie County, on May 25, was 1,881 bbls. from the Simpson lime at 4,012-48 feet. The owners advise that the well will be completed in the Simpson until the production declines sufficiently to warrant deeper drilling.

Oklahoma City Area

At the close of last week there were six drilling wells in the Oklahoma City Field in the Siliceous lime. Five of these wells were drilling ahead and coring; the other was cementing casing and getting ready to rig up standard tools. As these deep tests have been averaging about 100 feet a week, the close of this week should see several of them setting casing and getting ready to test the pay horizon from which the discovery well is producing.

Indian Territory Illuminating Oil Co., Foster Oil Co., Joe Cromwell and Wirt Franklin Oil Co.'s No. 1 Trosper Park, C SE NW, Section 13-11-3w, Oklahoma County, had 40,000,000 feet of gas at 5,398-5,405 feet with a rock pressure of 2,125 pounds, considered by many the largest rock pressure of any well ever completed in the State, is proving very obstinate and the crew is still pumping mud and water into the well in an effort to shut off the gas to permit drilling deeper.

Mid-Kansas Oil & Gas Co.'s No. 1 Fortson, C SW NE, Section 24-11-3w, Oklahoma County, is the deepest well in the field south of the capital city. It was drilling in Big Lime at 6,293 feet on Saturday, May 25. The same company's No. 2 Fortson, C NW NE, Section 24-11-3w, Oklahoma County, was drilling at 6,158 feet.

Sinclair Oil & Gas Co.'s No. 1 Stamper, NE SE NW, Section 30-11-2w, Oklahoma County, has successfully mudded off gas at 6,120 feet, found the top of the Siliceous at 6,155 feet, and was drilling in the lime at 6,189 feet. Some company's No. 1 Kinter, NW cor. SE, Section 30-11-2w, Oklahoma County, has Siliceous lime at 6,125 feet, and was drilling ahead at 6,189 feet.

Indian Territory Illuminating Oil Co.'s No. 1 Trosper, C NE SW, Section 13-11-3w, Oklahoma County, had the top of the lime at 6,118 feet, and was coring ahead at 6,153 feet in sandy shale with a slight showing of oil and gas. Same operators' No. 2 Bodine, SW NE SE, Section 24-11-3w, Oklahoma County, have landed 7-inch casing at 6,118 feet, in lime after getting the top of the lime at 6,110 feet.

Coline Oil Co.'s No. 1 Olds, C SE NW, Section 24-11-3w, Oklahoma County, cored from 6,097-6,100 feet in sandy shale

(Continued on Page 69)

WILDCAT OPERATIONS IN OKLAHOMA

(Descriptions are East and North unless marked otherwise)

NORTHERN OKLAHOMA

ALFALFA COUNTY

Company, farm and location—	Remarks:
Smith Bros.' No. 1 Forbes, SE cor. NW NW Sec. 12-27-11w	Shut down 385 ft.
Washoma Oil Co.'s No. 1 Acre, SW cor. NE Sec. 14-24-11w	Rig.

BECKHAM COUNTY

F. Coogan's No. 2 Holmesburg, SE NW Sec. 25-9-25w	Rig.
C. & H. Petroleum Co.'s No. 1 Barnes, SW cor. NW NE Sec. 32-9-22w	Shut down 3,460 ft.
Producers Exploration Co.'s No. 1 Seidell, SE cor. SW SW Sec. 17-9-22w	Shut down 2,402 ft.
Trees Oil Co.'s No. 1 Rodgers, SW cor. SW Sec. 30-8-25w	Shut down 2,230 ft.
Carson and others' No. 1 Danby, SW cor. SE NE Sec. 20-8-22w	Shut down 1,465 ft.
Pferffel and others' No. 1-A Carter, NE cor. NE Sec. 35-9-22w	Shut down 1,500 ft.

BLAINE COUNTY

Lowen and others' No. 1 Unknown, NW cor. SW NW Sec. 27-16-11w	Spudded and shut down; renewing leases.
Washoma Oil Co. and others' No. 1 Phillips, C NW SW Sec. 13-19-10w	Drlg. 1,365 ft.

CADDO COUNTY

J. B. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w	Shut down 150 ft.
W. J. Hartley's No. 1 Galbreath, SE cor. NW SE Sec. 29-5-12w	Shut down 3,394 ft.

CLEVELAND COUNTY

Daniels & LeWright's No. 1 Vandever, C SW Sec. 15-7-1w	Shut down 3,130 ft.
Phillips Pet. and T. B. Slick's No. 1 Hentleman, NE cor. NE Sec. 8-10-2w	Drlg. up bailer 5,585 ft.

COAL COUNTY

Indian Territory Illuminating Oil Co.'s No. 1 Harris, SE NE Sec. 10-1-11e	Shut down 1,975 ft.
W. E. McGraw's No. 1 King, C SW NE Sec. 11-1-8e	Rig.
Indian Territory Illuminating Oil Co.'s No. 1 Cook, SW cor. NW Sec. 10-1-11	Drlg. 7,108 ft.
Robert Galbreath and others' No. 1 Jones, SW cor. SE Sec. 24-1-9	Shut down 3,350 ft.
J. S. Cosden's No. 1 Richardson, NW cor. NE NE Sec. 6-2-8	Underreaming 10-in. csg. 1,855 ft.
McGinley & Sigler's No. 1 Willsey, NW cor. SE SE Sec. 7-2-8	Location.
E. W. Whitney's No. 1 Brown, C SE NE Sec. 10-2-8	Shut down 202 ft.

COMANCHE COUNTY

Green and others' No. 1 Wilson, C NE SW Sec. 14-1-12w	Shut down 4,055 ft.

CUSTER COUNTY

W. E. Witt's No. 1 Wellman, C SE Sec. 1-14-14w	Rig and tools.

GARFIELD COUNTY

E. L. Love and others' No. 1 White, SE cor. NW Sec. 9-24-6w	Sand 4,770-4,800 ft.; hole full water; set. 6-in. casing.

GRADY COUNTY

J. V. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w	Spudded and shut down.
J. M. Henry and others' No. 1 Abraham, SE cor. NW Sec. 4-5-8w	Rig.

GRANT COUNTY

Cowden and others.' No. 2 Vollmer, CEL NE SW Sec. 22-25-4w	Shut down 5,640 ft.
Lario-Lathrop's No. 1 Cornell, NW cor. NW Sec. 24-28-3w	Cleaning out 4,665 ft.

GARVIN COUNTY

Gardner Pet. Co.'s No. 1 Halverson, SW cor. NE Sec. 8-4-2	Location.
Gilcrease Oil Co.'s No. 1 Kelly, SE cor. NW NE Sec. 36-3-3w	Drlg. 4,144 ft.

GREER COUNTY

I. T. I. O. and others' No. 1 fee, C SW NE Sec. 17-6-24w	Drlg. 1,480 ft.
S. M. Stauffer's No. 1 Castleman, SW NE Sec. 8-4-26w	Rig.

HARMON COUNTY

I. T. I. O. Co.'s No. 1 fee, C SW SE Sec. 17-5-24w	Rig.

HARPER COUNTY

Hoffer Oil Co.'s No. 1 Cooper, NW cor. SE SE Sec. 12-25-22w	Shut down 4,130 ft.

HASKELL COUNTY

Marion Oil's No. 1 Sanders, NW NE SW Sec. 10-9-18e	Shut down 2,387 ft.
Sanboise Gas' No. 1 Unknown, SW NW SE Sec. 32-9-21e	Shut down 2,100 ft.

(Continued on Page 110)

Steady Climb of Kansas Production

All Previous Peaks Threatened. Quality of the Oil Improves. Western Side of the State Continues Promising

By W. A. Spinney
Staff Correspondent, Kansas Fields

With the largest field in Kansas producing the highest gravity oil in the State the weighted average gravity of Kansas crude oil is a little higher than that of any state in the Mid-Continent and the recent increase in the price of crude oil has benefited Kansas operators more on the average than it did operators in other Mid-Continent States. The Sedgwick County Field produces oil of from 41 to 44 gravity. Some of the crude is being sold at 41 cents per barrel higher than under the old price. The weighted average gravity of the crude in that field is between 42 and 42.9 degrees and on a basis of 30,650 bbls. per day production, the average for last week, operators in that field are receiving $12,505 50 per day in excess of what they would have received under the old price. The production of Kansas averaged 116,500 bbls. per day for the week ending May 25. It is steadily advancing to the old peak of production reached in 1918 and again in 1928, with pipe line facilities and storage capacity for much more than the State will produce.

The outstanding wildcat well in western Kansas is in Trego County, although several important wildcat showings of oil and gas have been made in adjoining counties the past few months.

The well in Trego is owned by the Central Commercial Oil Co., No. 1 King, NE cor., Section 20-13-21w.

Oil was found at 3,960-72 feet, which is below the lime, indicating a strong possibility of being a pool opener. It made a flow or two and was slopping over until shut in to erect tanks. After four tanks had been constructed the well was swabbed and produced in the tanks 110 bbls. in 10 hours, the fluid was lowered from 3,400 feet to 900 feet. The first 24 hours production was 284 bbls., the second was 270 bbls. The oil has been found to be 34.6 gravity and it will be purchased by the Sinclair Crude Oil Purchasing Co., which has under construction 3½ miles of 4-inch pipe line to the nearest railroad, where a loading rack will be built. Central Commercial Oil Co. is drilling several other wildcat wells in the State, but this is the first one to find oil in commercial quantities.

Wilcox Sand Dry Hole

Amerada Petroleum Corp.'s No. 1 Mandeville, C SE SE, Section 24-34-6w, Harper County, found a hole full of water in the Wilcox sand at 5,368-75 feet. The well had been drilled on a favorable-looking structure which was core drilled. The owners had a lot of difficulty while the well was in the process of drilling. After the first hole was more than a mile deep it was found necessary to plug back on account of a fishing job and start deepening before it reached the Wilcox sand.

New Tests in McPherson

Recent showings of oil in McPherson County have led the major oil producers to make a more thorough search of that county for crude oil. Three new wildcat wells are getting under way. E. W. Marland, Inc., Slick, Pryor & Lockhart, Inc., and Bradford & Johndahl have made locations for wildcat tests.

Slick, Pryor & Lockhart, Inc. is building a rig in the NE NW NW, Section 34-20-3w, 2 miles north of the wildcat well of Ted Washabaugh and 6 miles south of McPherson. The rig is on a block that has been core drilled and is said to be located favorably on structure, the price paid for this block is reported to be in excess of $50,000.

E. W. Marland, Inc.'s test will be in NE SW NE, Section 36-18-4w, in the northwestern part of the county. The well is a considerable distance from production and is the first location announced by the company in Kansas.

The Bradford & Johndahl location is in the NE SE SW, Section 17-20-2w, southeast of McPherson. The test will be drilled on the Goering farm and will test out a large block of acreage that extends into Marion County.

Greenwood County

Greenwood County is still creating a lot of interest. The area has been supplying a lot of new development in the way of pool openers and extensions to pools that were thought to be defined years ago.

The latest test in that area is the Empire Oil & Refining Co.'s No. 1 Patterson, NW cor. NE SW, Section 36-23-11, northeast of Hamilton. The well apparently is good for 300 bbls. and is an extension to the Seely Pool, which has produced millions of barrels of oil. It had Bartlesville sand at 1,768-1,835 feet, and after a shot the hole filled up and started slopping over. It will be cleaned out and put on a production test by swabbing.

There are 10 other tests nearing completion in the area which is more active than any other in Kansas except Sedgwick County. The above well extends the pool over a mile and a lot of new drilling will be necessary between the new well and the pool to prove up that part of the district.

In Rice County

The Welch Pool, southeast of Lyons, in Rice County, will be tested in the lower horizons if the Prairie Oil & Gas Co. proceeds with its plans of deepening an old well to the Wilcox sand, expected to be found at 4,000 feet. Production in the pool is coming from chat at 3,400 feet which runs from 50 to 100 feet in thickness. The only deep well drilled near the pool to date was the Prairie Oil & Gas Co.'s No. 1 Wood, SE cor. SW NE, Section 34-30-6w, just outside of the producing area of the Welch Pool. It failed to find oil in the chat and was abandoned at 3,795 feet. Not a dry hole has been drilled inside the circle of production. The pool is over five years old and it has one well which is unusual in performance. It is the Independent Oil & Gas Co.'s No. 2 Miller, NW cor. NE, Section 3-21-6w. Its oil production is coming from a chat formation and was completed in May, 1927. It started producing at 500 bbls. a day, increasing its production until the peak was reached in December the same year at the rate of 1,300 bbls. On May 25, this year, it produced 502 bbls. The discovery well in the pool is the No. 1 Welch, SE cor. SW NW, Section 34-20-6w, which had an initial production of 115 bbls. at 3,370-3,416 feet. The Prairie Oil & Gas Co. is considering the advisability of deepening its No. 3 Welch to the Wilcox sand. It is now at a total depth of 3,518 feet and is producing 5 bbls. a day.

The oil production in the Goodrich Pool south of the Valley Center Pool in Sedgwick County, is having a hard time keeping ahead of the water. The pool is showing strong evidence of producing from what appears to be a fault. Marland Production Co.'s No. 1 Goodrich, Section 16-26-1e, produced 1,150 bbls. of oil and 1,300 bbls. of water; No. 2 Goodrich made 450 bbls. of oil and 500 bbls. of water. Phillips Petroleum Co.'s No. 1 Difford, Section 1-26-1w, gauged 25 bbls. of oil and 200 bbls. of water. Other wells in the vicinity are showing water.

The Barnsdall Oil Co.'s wildcat, in Ness County, No. 1 Lauk, C SW, Section 35-18-21w, produced 25 bbls. of oil the first day at 4,177-80 feet, in what may be the Gorham pay. It is being deepened and is underreaming casing at 4,182 feet.

A Community Test

A community well that is also a wildcat has been spudded in by the following companies: Carter Oil Co., Prairie Oil & Gas Co., White Eagle Oil & Refining Co., and Hartman & Skaer, each owning equal and undivided interests. It is their No. 1 Bachelder, SW cor., Section 17-25-3e, Butler County. The location is 6 miles east of the Shell Petroleum Co.'s Lygrisse well on a block of 3,000 acres of leases.

A lot of oil companies are holding acreage in southwestern Cowley County, and considerable interest is attached to the location recently announced by Foster & Deal in No. 1 Wright, in the SE cor. NW, Section 27-33-3e. The test will be drilled on a good structure located by core drills and data taken from surrounding wells have been previously drilled. The well will be a mile east of the famous Rainbow Bend Pool which proved extremely rich in the Bartlesville sand, and will also test out territory long considered promising by many oil men.

Sedgwick County again broke all previous production records with a yield of 34,439 bbls. of crude oil from 63 wells on Friday of last week. The Shell Petroleum Corp.'s No. 1 Lygrisse still leads the list of heavy producers, and is the State's largest oil well, it made 2,160 bbls on that morning's gauge. A new peak was reached in the Valley Center Pool on the same day when 26 of its 27 wells made a total of 19,580 bbls. of crude oil.

Sedgwick County Production

The production by companies and leases in the Sedgwick County area for May 25 is shown by the following:

Company, lease—	S-T-R	Wells	Bbls.
Aladdin:			
Bennington	6-26-1	1	820
Allison et al			
Kelly	6-26-1	1	85
Barnsdall:			
Samuel	24-25-1	1	60
Bu-Vi-Bar:			
Branch	6-26-1	2	1,018
Bright "A"	6-26-1	2	301
Bright "B"	6-26-1	1	869
Byers	7-26-1	1	229
Emrich	6-26-1	2	1,161
T. Goodrich	6-26-1	2	690
Lantz	12-26-1w	1	1,604
Corr	1-26-1w	1	409
Lyons	7-26-1e	3	2,664
Roll	7-26-1e	1	556
Shawver	7-26-1e	4	4,581
Wright	12-26-1w	3	3,197
Woodward	7-26-1e	1	333
Connell:			
Cross	27-25-1w	1	12
Davis-Skelly:			
Wilson	1-26-1w	7	2,759
Derby:			
Bowling	6-26-1e	1	222
Gorman	6-26-1e	2	2,076
Dickey et al:			
Robbins	21-28-1e	1	590
Marland:			
Goodrich	16-25-1e	2	1,685
Mary Jane:			
Fitch	6-26-1e	2	1,077
Montour:			
Lavender	6-26-1e	2	1,528
Patton & Wentz:			
Swenson	6-26-1	1	240
Phillips:			
Difford	1-26-1w	3	250
Piefer	6-26-1e	1	136
Prairie:			
Cross	27-25-1w	1	100
Swyser	36-25-1w	3	385
Pyle & Sutter:			
Caldwell	6-26-1e	2	1,006
Reynolds & Hays:			
Roll	7-26-1	1	180
Shell:			
Lygrisse	15-26-2	1	1,875
Stearns & Streeter:			
Roll	7-26-1	1	662
Tidal:			
Scherger	6-26-1	2	202
Vickers:			
Nessen	6-26-1	3	750
White Eagle:			
Baylor	6-26-1	1	40
Total		68	34,352

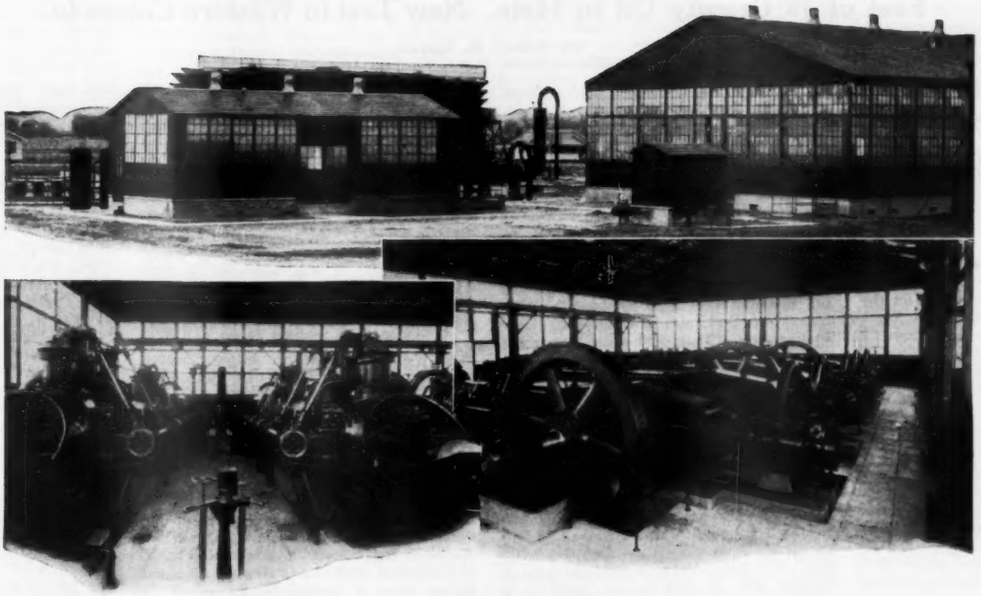
(Continued on Page 72)

WILDCAT OPERATIONS IN KANSAS

(Descriptions are East unless otherwise marked)

Company, farm and location—	Remarks:
BARBER COUNTY	
Barbara Oil Co.'s No. 1 Angel, NW cor. NE Sec. 14-33-13w	Drlg. 1,235 ft.
Robertson et al's No. 1 Powell, SE cor. SE Sec. 11-32-10w	Rig on ground.
Allison & Fitzwilliams' No. 1 Morrisse, C NW SE SE Sec. 9-30-12w	Drlg. 2,750 ft.
Rolland et al's No. 1 Pickens, NE cor. NW NE Sec. 27-30-14w	Underreaming 8-in. csg. 4,686 ft.
BARTON COUNTY	
Gobel & Bending's No. 1 Bartlett, SW cor. SW Sec. 28-17-15w	Shut down 660 ft.
Everett & Wiley's No. 1 Ward, NW cor. SW Sec. 12-20-13w	Shut down 3,948 ft.
Phillips and Shell's No. 1 McClellan, SE cor. SW Sec 23-26-6e	Underreaming 5-in. csg. 3,233 ft.
BUTLER COUNTY	
White Eagle's No. 1 Bachelder, SW cor. Sec. 17-25-3e	Rig on ground.
Lilly & Schreck's No. 1 Newton, NE cor. NW NW Sec. 17-25-7	Drlg. 300 ft.
Crawford et al's No. 1 Thompson, NW cor. SW Sec. 2-24-3e	Shut down 200 ft.
Aladdin Petroleum Co.'s No. 1 Bronsenger, NE cor. NE SW Sec. 24-27-3	Rigging up.
Shell Petroleum Corp.'s No. 1 Thiesstin, C SE SW SE Sec. 10-24-3	Underreaming 8-in. csg. 2,680 ft.
CHASE COUNTY	
Marland Prod. Co.'s No. 1 fee, SW NE Sec. 8-31-8e	Drlg. 2,050 ft.
COWLEY COUNTY	
J. B. Markley's No. 1 Tatum, SE cor. SW Sec. 11-31-6	Shut down 520 ft.
DICKINSON COUNTY	
Prairie Oil & Gas Co.'s No. 1 Morgan, NW cor. Sec. 26-16-3e	Rig.
Milmac's No. 1 Buhler, SW NE Sec. 28-16-4e	Drlg. 700 ft.
ELLIS COUNTY	
T. C. Johnson's No. 1 Robbins, SW NW Sec. 15-14-16w	Drlg. 2,000 ft.
John Brown's No. 1 Gestner, SE cor. SW NE Sec. 13-13-18w	Drlg. 1,400 ft.
Rush Oil Co.'s No. 1 Gatewood, NW cor. NW Sec. 4-15-20w	Shut down 1,600 ft.
Finney & Weiner's No. 1 Freeman, SE cor. SW Sec. 24-15-20w	Spudded and shut down.
Phillips Pet. Co.'s No. 1 Johnson, SW cor. NE Sec. 9-13-19w	Drlg. 3,150 ft.
Phillips Pet. Co.'s No. 1 Dechant, NE SE Sec. 12-13-16w	Sand 3,090-3,146 ft.; 35 bbls. 12 hrs.
Phillips Pet. Co.'s No. 1 Schneider, NW cor. Sec. 20-12-17w	Drlg. 3,429-39 ft.; 108 bbls. in 8 hrs.; shut down.
Burger et al's No. 1 Hadley, SW cor. SW NW Sec. 20-11-17w	Underreaming 775 ft.
John Brown No. 1 Company's No. 1 Gestner, SE cor. SW NE Sec. 13-13-18w	Shut down 1,400 ft.

(Continued on Page 109)



Guthrie station, on the Monroe-Memphis gas line, and its Worthington Gas Engine Gas Compressors

Moving the Gas . . .

through a 100,000,000 cu. ft. per day line

THE gas line from the Monroe, La., field to Memphis, Tenn., presents a striking example of modern methods and equipment.

Both the Guthrie field station and the Benoit intermediate station are equipped with standard Worthington Gas Engine Gas Compressors, developing a total of 6,875 hp. at 125 R.P.M. Each station contains two twin tandems of 1,250 hp. each, Guthrie has also one single tandem of 625 hp. and Benoit two single tandems of like power. All are 24 x 36 engines, equipped with 14½-inch diameter compressor cylinders, and have a maximum working pressure of 400 lbs. The line, with a capacity of 80,000,000 to 100,000,000 cu. ft. per day, serves Memphis and many intermediate towns.

A. M. Lockett and Company built the line under sub-contract from Ford, Bacon and Davis. The Ralph E. Davis organization were engineers on the line.

Write for interesting data on the advantages of Worthington standardized interchangeable gas engine gas compressors for gas line service.

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WORTHINGTON

EGR-2

Lea County Well Showing for Producer

Test in Pearl District Shut Down for Connections with 2,500 Feet of 36 Gravity Oil in Hole. New Test in Western Colorado

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., May 25.—Henderson, Dexter & Blair's No. 1 McDonald & Jewett, in the Pearl district in Lea County, New Mexico, 3¾ miles northwest of the Texas Production Co.'s No. 1 Lynch, is showing for a producer at 3,554 feet, where it is shut down for connections with 2,500 feet of 36 gravity oil in the hole, and the Vacuum Oil Co.'s No. 1 State, farther to the north, showed 1 bbl per hour at 4,462-66 feet. The Skelly Oil Co.'s No. 1 Joyner, in the Jal district, made 400 bbls. when opened to capacity and will be drilled deeper in hopes of increasing the flow. Leonard & Levers have made a new location northeast of the Artesia Pool in Eddy County, and the Continental Oil Co.'s deep test on the Rattlesnake Dome in the northwestern part of the state is now flowing 500 bbls. of oil which separates easily from the water. Tubing with packer to shut off the water will be run. The Angel Peak Oil Co.'s Kutz Canon well in San Juan County was still burning at last reports.

The Boundary Butte test of the Continental Oil Co. in southeastern Utah had more gas at 5,102 feet and is now making around 15,000,000 feet.

In Colorado one producer and two failures were completed in the Florence district, the producer making 100 bbls. initial. Another well in the Vineland district had water and about winds up that operation. The Texas Production Co. announced a new test for the White River Dome in western Colorado and operations are being resumed on several wells in Jackson County which have been idle for the winter. The Texas Production Co.'s No. 36 Lloyd, on the Iles Dome, had water in the Sundance and will plug back.

The Cody Petroleum Co.'s No. 2 Klindt, in the Oregon Basin Field of Wyoming, after going to water in the Tensleep was drilled to the Amsden at 4,165 feet and oil in the new horizon is standing within 100 feet of the top, marking what appears to be an important discovery. The Midwest Refining Co.'s No. 36 Rosenberg, on the Frannie Dome, ran into water and its No. 36 Kirk-Peters is swabbing around 125 bbls. of oil on the same dome.

NEW MEXICO

Henderson, Dexter & Blair's No. 1 McDonald & Jewett, SE cor. Section 18-20-34, in the Pearl district in Lea County, southeastern New Mexico, looks as if it will be a producer. It is bottomed at 3,554 feet and shut down for connections. After having a small show of oil at 3,415 feet in gray sand, it was drilled deeper and at 3,522-25 feet it had more oil, rising 1,800 feet in the hole in 27 hours. At 3,549 feet there was an increase and at 3,554 feet when drilling was suspended, the oil stood 2,500 feet in the hole. It is 36 gravity oil and looks as if it will make a commercial well at present depth. The location is 3¾ miles northwest of the Texas Production Co.'s No. 1 Lynch, NW cor. SE Section 34-20-34, estimated good for around 1,000 bbls. at a total depth of 3,731 feet. The McDonald & Jewett well appears to be about 60 feet higher than the Lynch well and the prospects are very encouraging for bigger production when drilled deeper. The Vacuum Oil Co.'s No. 1 State, center west section line, Section 13-17-34, continues to look promising and is bottomed at 4,466 feet in gray sand and running the 8¼-inch. It showed 1 barrel of oil per hour at 4,462-66 feet. The Texas & Pacific Coal & Oil Co.'s No. 1 State, SE cor. SW Section 22-23-36, is coring in gray lime at 3,995 feet. It stopped for another test at 3,945 feet and swabbed about 15 bbls. of oil with the water and made 8,000,000 feet of gas, estimated. The gas is about the same as showed at 3,824 feet, but there was a small increase in the quantity of oil.

The Skelly Oil Co.'s No. 1 Joyner, NE cor. SE Section 26-25-36, in the Jal district, the best producer so far drilled in that area, which had been flowing better than 400 bbls. through a half-inch choke, was opened on May 15 and allowed to flow for 24 hours, in which time it gauged 400 bbls. Preparations are being made to drill it deeper. It is bottomed at 3,331 feet, the depth at which it has stood since early in February. The Pueblo Oil Co.'s No. 1 Crosby, SW SW Section 29-25-37, is drilling at 2,835 feet in white lime and had a flow of gas estimated at 500,000 feet at 2,819 feet. It previously had had an oil show in gray lime at 2,695-2,700 feet. The Empire Gas & Fuel Co.'s No. 1 Morton, SW cor. NE Section 28-29-32, is drilling at 480 feet in red shale, and its No. 1 Closson, NW SE Section 6-22-36, is running the 20-inch at 175 feet. Same company's No. 2-B State, SW SE Section 8-21-35, is drilling at 1,744 feet in red rock. Cranfill & Reynolds' No. 1 Meyers, NE cor. SE Section 22-24-36, is drilling at 340 feet in red rock with the 20-inch at 192 feet, and its No. 1-B State, NE cor. Section 2-21-33, is building rig. Bull & Hagen's No. 1 State, C NE Section 33-11-35, is drilling at 1,115 feet in red rock.

The Texas Production Co.'s No. 1 Moore, SE cor. Section 24-20-32, for which material was being moved to location, is indefinitely suspended, and its No. 1 Humphreys, NE cor. SW Section 18-20-32, is shut down at 855 feet in salt waiting for stem. Same company's No. 1 Shepherd, SE cor. NE Section 6-26-37, is drilling by tools at a total depth of 3,223 feet, and its No. 1 Moberly, NW SE Section 17-26-37, is cleaning out at a total depth of 3,542 feet. The Midwest Refining Co.'s No. 22 Gregory, NW SE SW Section 31-25-37, is drilling at 2,320 feet in anhydrite, and its No. 31 Capps, in the Hobbs area in SW cor. Section 3-19-38, is bottomed at 1,575 feet and drilling up an underreamer lug. The 12½-inch will be recemented at 1,549 feet. The Marland Production Co.'s No. 1 Wells, SW SE NE Section 11-25-36, in the Jal area, is laying water lines, and its No. 1 McCallister, SW cor. SE Section 24-26-36, is building rig. Same company's No. 1 Flint, SE cor. Section 28-20-34, is building rig.

Eddy County

In Eddy County there was little outside of routine reported with the exception of one new location in Leonard & Levers' No. 1 State, 210 feet each way out of the northwest corner of Section 19-20-30, in the area northeast of the Artesia Pool. The Ohio Oil Co.'s No. 1 Sellery, SE cor. NE Section 22-16-30, is drilling at 200 feet, and Leonard & Levers' No. 1 Haggerty, NE cor. NW Section 18-16-30, is drilling at 3,525 feet with no new shows. R. D. Compton's No. 1 Vandergriff, NW cor. NE Section 33-19-30, is drilling at 100 feet, and the Grayburg Oil Co.'s No. 1 Burch, C NW SW Section 19-17-30, is drilling at 2,160 feet. It topped the red sand at 2,150 feet. The Midwest Refining Co.'s No. 31 Jones, SW cor. Section 26-19-31, is drilling at 115 feet in the red beds, and its No. 31 Lane, SW cor. Section 28-19-30, is drilling at 385 feet in salt. The salt was topped at this depth. George F. Getty, Inc. No. 1 Cook-Ironsides, C SW NW Section 8-20-29, in the Twin Mounds district, is drilling at 400 feet.

In Chaves County, Snowden & McSweeny's No. 1 Merchant, NW NW Section 27-15-23, on the Coontail structure, is being plugged at a total depth of 4,272 feet. It was bottomed in lime with the 6⅝-inch collapsed. No important shows were reported. The Transcontinental Oil Co.'s No. 1 Robbins, SE cor. Section 1-14-28, ran 2,926 feet of the 8¼-inch to shut off sulphur water at 2,855-60 feet. The Shell Petroleum Co.'s No. 1 Terry, SW NE Section 22-19-38, is drilling at 342 feet in the red beds.

Rattlesnake Dome

The Continental Oil Co.'s No. 17 Santa Fe, C NE Section 2-29-19, on the Rattlesnake Dome in the Navajo Indian Reservation in San Juan County, in the northwestern part of the state, one of the most important wildcats in his area, is preparing to run a string of 2½-inch tubing with a packer in an effort to shut off the water just above the pay and make a test. The hole is bottomed at 6,774 feet in the lower Pennsylvanian and has been making oil with water for several weeks. The water is coming from a horizon just above the oil. The plan of underreaming and lowering the 4¾-inch to shut off the water was difficult to carry out on account of the heavy pressure. The quantity of oil has shown some increase and the well is now making around 500 bbls. of clean oil a day. It comes out with a flow of more than 2,000 bbls. of water, but the oil separates from the water very easily. There is no doubt that the company will have a big well when the water is shut off.

The Angel Peak Oil Co.'s No. 1 Garland, Section 11-28-11, on the Kutz Canon structure, reported on fire at a total depth of 3,065 feet, was still burning on May 16. A hood is being made at Durango to be used in an effort to smother out the flames. When the blowout occurred a large cavity was created and this is filled with water. The water is believed to be coming from an upper horizon through a puncture in the casing which occurred when a spear was used in an effort to loosen the bailer, which had been blown up the hole. The rig had been moved back before the gas caught fire and was not damaged.

The Milwaukee-New Mexico Syndicate's No. 1 Beardsley, C NE Section 30-28-11, is bottomed at 1,800 feet and underreaming the 6⅝-inch to carry and land on top of the Picture Cliff. The Iowa Oil Syndicate's No. 1 Viles, SE cor. Section 28-29-11, is plugging back from 832 to 670 feet in an effort to save an oil sand in the Farmington series. The Childers Drilling & Producing Co.'s No. 2, Section 24-31-16, Westwater Dome, is drilling at 2,515 feet in sand, one of the Dakota series. The first sand was 70 feet thick and dry.

UTAH

The Continental Oil Co.'s No. 1, Section 22-43-22, on the Boundary Butte structure in San Juan County, southeastern Utah, picked up more gas at 5,102 feet in the lower Pennsylvanian, the flow being estimated at 10,000,000 feet and making a total flow of approximately 15,000,000 feet. Drilling continued to 5,119 feet when the bit went into a sticky lime mixed with shale and it was decided that to protect the hole the bottom should be cemented. This was done and drilling out cement has commenced. Whether the hole is bottomed in the same horizon producing oil in the same company's Pennsylvanian test on the Rattlesnake Dome in New Mexico is not yet definitely certain and the intentions are to drill ahead slowly to explore the formations. The gas is expected to come back in when the cement is drilled out.

The Utah Southern Oil Co.'s No. 1-A J. L. Shaffer, Section 36-26-20, on the Cane Creek Dome in Grand County, has resumed after cementing the 6¼-inch at 3,096 feet to shut off water from above, and its No. 1 King, Section 13-23-20, Salt Valley structure, is idle at 3,800 feet waiting for a string of 6¼-inch to shut off heaving ground. The Navajo Petroleum Co.'s No. 1 State, Section 2-20-21, Cisco district, is idle at 2,965 feet waiting for 6¼-inch to shut off salt water. In Uinta County, the Western Venture Corp.'s No. 1 Spahr, Section 8-5s-21, Dog Valley, is bottomed at 1,210 feet and underreaming the 8¼-inch to shut off water, and its No. 1 Krumvieda, Section 6-5-21, is drilling at 1,515 feet and preparing to underream and lower casing. The Diamond Oil Co.'s No. 4, SE NW Section 16-8s-5e, Utah County, has commenced spudding for a test of the Wasatch. The Phillips Petroleum Co.'s No. 1 Shick, Section 16-27-16, Wayne County, is running 6⅝-inch casing to bottom at 4,985 feet for a water shutoff.

COLORADO

Completions in Colorado were confined to the Florence district in Fremont County and consisted of two failures and one producer. The St. Mary's Oil Co.'s No. 3 Beltramo, SE SE Section 2-19-70, in the west extension, was completed at 2,300 feet with a production of 100 bbls. the first 24 hours on the pump. This well is in one of the richest areas in the Canon City Pool, as the west extension of the Florence Field is known. The St. Mary's company has several producers which have been yielding the owners around $9,000 a month. The company is owned by nine people who had small orchards or truck gardens close to the Canon City limits and their adventure into the oil business has proven quite profitable. The Continental Oil Co.'s No. 1 Frank Steinmier, NE SW Section 35-18-70, was abandoned at 2,390 feet after being deepened. This well was drilled in 1926 and was the first one put down by the Continental company in the west extension. It was good for 10 bbls. at 1,125 feet at first and about a year later it was deepened to 1,305 feet and made 200 bbls. initial. The other completion was the Continental's No. 5 Marjo, SW NW Section 22-20-69, in the south extension of the Florence Pool, which was dry and abandoned at 2,930 feet.

The last hope for an oil field in the Vineland district southeast of Pueblo seems to have disappeared with a failure in the Security Oil Trust's No. 1 Bush, SW NW NW Section 14-22-63. It was one of the few wells having a show of oil in the Dakota at 1,030-53 feet and was shot in the hope of making a producer. After cleaning out and drilling a little deeper, water came in. There is a possibility it will be carried down to the Morrison. The corrected depth to which the Continental Oil Co.'s No. 1-A Shaw, NW NW Section 3-22-63, was drilled is 1,425 feet. This well, which had water in both Dakota sands, was only 30 feet south of the "discovery."

Rio Blanco County

The Texas Production Co. announced a new location this week in its No. 1

Potter, C NE SW Section 30-2n-96, on the White River structure in Rio Blanco County. Drilling is expected to be entirely in the Wasatch formation of Tertiary age. The deal with the Leonard and other interests whereby a test is to be put down was made more than a year ago. The White River Development Co., controlled by the Leonard interests of Pennsylvania, drilled two wells on the same section upon which the new test has been spotted in 1923. The first hole was junked at 1,350 feet, where it had a flow of 10,000,000 feet of gas. The rig was skidded and another started on the NW Section 30-2n-96. It drilled to 2,790 feet, all in the Wasatch, and could go no deeper. It cut four gas sands aggregating 16,000,000 feet a day, and had several shows of high gravity oil. The structure is 35 miles due east of the Rangely Dome and 15 miles southwest of the Wilson Creek structure where The Texas Company drilled a deep test. The only other active operation in Rio Blanco County is the White Eagle Oil & Refining Co.'s No. 1-A Fordham, NW SW Section 9-2s-96, on the Piceance Creek Dome, which is drilling at 175 feet. This also is a Tertiary test.

Moffat County

In Moffat County, it looks as if the Midwest Refining Co. will have a producer in its No. 24-SD Parkinson, NE SE NW ection 22-4-92, which is bottomed in black shale at 3,506 feet and is putting on master gate and moving back the boilers preliminary to drilling into the Sundance. Before cementing it had about 1,600 feet of oil in the hole. The Texas Production Co.'s No. 36 Lloyd, SE cor. Section 21-4n-92, on the southwestern flank and about one fourth mile from the nearest producer, is bottomed at 3,862 feet in the Sundance with a hole full of water, and will be plugged back to the Morrison, shot and tested. It topped the Sundance at 3,648 feet and had a little oil at first followed by water. It had 1,800 feet of oil in the hole from the Morrison at 3,574 feet and stopped for a test in which it was swabbed dry. For some time this well gave considerable promise of extending the productive area. Thomas McLaughlin and others' No. 1 Williams, NW SW Section 2-3n-92, in the fault zone south of Iles, is drilling at 3,498 feet and carrying the 8¼-inch. The Texas Production Co.'s No. 1 Berlin, SW NE Section 19-12n-100, Bartram Dome, is rigging up.

In Routt County, the Texas Production Co.'s No. 4 Belle Dennis, NE SE Section 7-6n-86, a test to the Sundance on the Tow Creek Dome, is coring at 4,716 feet and getting rather deep. It is much deeper now than expected it would have to go. The same company's No. 1 State-Oliver, NE SW Section 18-6-86, is drilling at 3,207 feet and will stop in the shale without going to the Dakota.

Mesa County

In Mesa County, the High Line Oil Syndicate's No. 1 Peerless, NE cor. Section 23-8s-104, is bottomed at 2,712 feet just above the Dakota, and will stop to underream and lower the 8¼-inch, which is hanging at 2,058 feet. After going through a hard sand, too hard to contain oil, at 2,655-70 feet, it cut another at 2,690-2,705 feet. The hole has had several good shows of oil and considerable gas.

In Huerfano County, the Parker Club, Inc., No. 1 Fee, E half Section 4-28s-68, Badito-Alamo structure, joint with the Kinney-Coastal Oil Co., is shut down at 3,016 feet, contract depth being reached and negotiations are pending for drilling deeper. The igneous formations cut by this well proved to be only sills, or stringers, and after going through these the bit went back into shale.

Jackson County, which has shown no activity during the winter, is showing signs of life. The Producers & Refiners Corp.'s No. 1 Hendershot, NW SE NE Section 2-6n-86, on the Pole Mountain structure, which shut down for the winter at 1,900 feet, is preparing to resume.

Freak Wells

The Continental Oil Co. is moving in material preliminary to resuming in the Walden area. This is where that company has a big gas well drilled several years ago that produced a carbon dioxide gas which came from the hole at an extremely low temperature and froze the oil to the consistency of mush. Its No. 1 Peterson, C SW SW Section 1-9n-79, near the discovery on the North McCallum Dome, encountered a flow of the same kind of gas at 5,115 feet more than a year ago, and in spite of the continuous work done on it, has not been completed, the intentions being to get through the gas in the Muddy sand, if possible, and test the lower horizons. Its No. 1 Pollack, SE cor. Section 2-9n-79, has been shut down for the winter at 4,890 feet, and its No. 1 Hoye, SW NE Section 34-9-78, on the South McCallum Dome, has been standing at 4,875 feet, where it had the same kind of gas with some high gravity oil. These freak wells are believed to have great possibilities, but they also furnish more than the usual amount of trouble, since the oil freezes while coming up the pipe, the hole bridges, the gas causes blowouts, and a little of everything else.

The Midwest Refining Co. is expected to announce soon the final location for its test to be drilled on Section 9-6n-80, on the Buffalo Creek structure.

In Bent County, in the southeastern part of the state, the Marland Production Co.'s No. 1 Pine Springs, NE cor. SE Section 27-27-49, is standardizing at 4,001 feet and bailing to deepen, and C. Frost Liggett's No. 1, NW NW Section 12-23-50, is resuming and is using some rotary equipment borrowed from the Marland's Pipe Springs test.

In Dolores County, in the southwestern part of the state, the Transcontinental Oil Co.'s No. 1, C NW Section 30-41-16, on the Glade structure, is overhauling machinery and preparing to resume after being shut down for the winter at 4,005 feet. This well is 8,500 feet above sea level at the derrick floor and is bottomed in the Pennsylvanian. Its location in the same general area as the Continental Oil Co.'s Pennsylvanian tests on the Boundary Butte Dome in Utah and the Rattlesnake Dome in New Mexico, will make its progress during the next few months of more than ordinary interest.

WYOMING

Park County in the Big Horn Basin supplied the principal news from Wyoming, the most important development being in the Cody Petroleum Co.'s No. 2 Klindt, SE NE NE Section 7-51-100, on the Oregon Basin Dome, which had a discovery of oil in the Amsden sand deeper stratigraphically than any horizon heretofore tested. This well, in the saddle between the north and south domes, was completed last June at 3,620 feet in the Tensleep with an initial production of 750 bbls. Water intrusion began shortly thereafter and some time ago it went entirely to water. It was decided to go back into the hole and deepen it for a test of the Amsden, which is the next horizon below the Tensleep, not previously drilled with one possible exception. It topped that formation at 4,148 feet and was drilled to 4,165 feet, when oil rose to within 100 feet of the top. There was no water with the oil. The crude appears to be about the same as that found in the Tensleep with some indications it may be a little better. The well will be equipped for pumping and if it proves to be commercial it probably will result in the deepening of other wells on the structure which have previously shown water in the Embar and Tensleep.

Frannie Dome

Another Park County development not so favorable was in the Midwest Refining Co.'s No. 36 Rosenberg, SE cor. NW Section 25-58-98, on the Frannie Dome. It is bottomed at 2,537 feet in brown sand with hole full of water. This well was started on the northern or downthrow side of the south fault that cuts across the structure and was intended as a test of the fault zone. However, as pointed out last week, the drill evidently went through the fault and reached the lime on the southern, or upthrow side. It probably will be drilled down to the Tensleep, the principal producing horizon at Oregon Basin, which has not been tested at Frannie. The Midwest's No. 36 Kirk-Peters (formerly No. 1 Kirk) SE cor. Section 23-58-98, which is north of the north fault, is bottomed at 2,811 feet in hard limestone (Embar) where it is swabbing 125 bbls. a day on a test. The first 24 hours it swabbed 177 bbls. The discovery well, drilled in last year, is located between these two wells.

The two wells being drilled by the Producers & Refiners Corp. on this same general line of folding about 3 miles to the southeast of the Frannie wells, are on a separate structure. Its No. 1 Hill, NE SE Section 7-57-97, is drilling at 258 feet in hard gray sand with the 20-inch cemented at 120 feet, and its No. 1 Rand, SE NW Section 7-57-97, is drilling at 2,115 feet in pink shale. In the Oregon Basin Field, the Producers & Refiners' No. 1 Owen, Section 29-52-100, is drilling at 615 feet in shale after straightening hole, and its other well in this same section is rigging up.

Big Horn County

In Big Horn County, the Cross Gas Co.'s No. 1, NE Section 23-56-97, on the Byron Dome, which last week was giving evidence of coming in as an oil well, failed to come up to expectations. It topped a sand at 4,203 feet and was drilled to 4,207 feet when considerable oil made its appearance through a hole full of water. Several hundred barrels were on the sump. The casing was run and set to make a water shutoff and the hole was deepened 1 foot after drilling out the cement, when it went into shale. The sand proved to be only 4½ feet thick and when the fluid was bailed down no more oil showed. It will be drilled deeper. The Producers & Refiners' No. 3, NW NW Section 24-56-98, Garland Dome, joint with the Kinney-Coastal Oil Co., is standing cemented at 2,708 feet, and the Ohio Oil Co.'s No. 1 Easton, Section 33-56-97, on the Byron Dome, is drilling at 1,000 feet.

In Hot Springs County, the Texas Production Co.'s No. 1, NW SW Section 23-45-100, Skelton Dome, is waiting for cement to set. The 13⅜-inch was cemented on bottom at 2,230 feet.

In Natrona County, the Prairie Oil & Gas Co.'s No. 1 Baird, NE cor. SW Section 22-31-81, a new operation to test the Clark Dome, 20 miles southwest of Casper, is rigging up, and the Fargo-Western Oil Co.'s No. 11, NE NW Section 3-33-83, on the Poison Spider structure, an old gas well which has been standing at 1,400 feet, is rigging up to drill deeper.

Fremont County is showing increased activity. The Texas Production Co. is digging cellar for another well on the Alkali Butte Dome three-fourths mile north and a little west of the discovery which came in last fall for around 600 bbls. at 3,952-4,000 feet and was plugged back after drilling to 4,240 feet. The new well is on state land 210 feet east and 660 feet north of SW cor. Section 36-34-95. The Producers & Refiners Corp. also is building rig for its No. 2 on the Muskrat Dome, 1½ miles northwest of the discovery, a 70,000,000-foot gas well. It is in the NW SE NW Section 33-34-92. This company's No. 7, SW NW Section 14-32-95, Sand Draw, is standing cemented at 2,917 feet. The Kinney-Coastal Oil Co.'s No. 1 Dykeman, SE SW Section 22-3n-1w, Pilot Butte, is bottomed at 2,380 feet and is underreaming the 12½-inch. It is about 1,100 feet above the objective Dakota, but may develop something of interest in the Mowry shale before the Dakota is reached.

Carbon County

In Carbon County, the Ohio Oil Co.'s No. 10 Dickinson, Section 34-20-78, Rock River Field, is drilling at 2,295 feet. The Producers & Refiners' No. 7, Section 7-26-89, Wertz Dome, is bailing water and drilling out cement after setting the 8⅝-inch at 3,489 feet. Total depth is 3,510 feet. Its No. 8, on the same section, is rigging up pump and boilers to kill gas. Total depth is 3,718 feet. The same company's No. 1, NE NE Section 14-25-89, Sherrard Dome, is bottomed at 3,103 feet and underreaming the 8¼-inch at 3,071 feet, and its No. 3, Section 2-19-88, Hatfield Dome, is drilling on iron and cement at 3,930 feet.

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GETS COMMERCIAL PRODUCTION IN DEEP LIME IN TURNER VALLEY

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, May 25.—In the Turner Valley Field, southwest of Calgary, Spooner Oils' No. 2, Section 24-20-3w5, encountered commercial production in the deep lime at around 5,244 feet. Drilling is being continued in a hard formation with increasing production, and at 5,250 feet, or about 184 feet in the lime, the well is making 10,000,000 feet of gas with between 80 and 100 bbls. crude naphtha recovery. Spooner's No. 2 is toward the north end of the field, about midway between Vulcan's No. 1 and United Oils' No. 4. A 6-inch hole was carried to production, and the well is being continued with 4-inch. Spooner's No. 1, LSD 12, Section 13-20-3w5, which has been making around 50 bbls. from the upper lime, will be carried deeper with the diamond drill as soon as No. 2 is finished.

In the south end, Mayland Oil Co.'s No. 1, LSD 10, Section 17-19-2w5, being finished by Imperial Oil, Ltd., struck a heavy oil flow in a stray sand above the Madison lime at around 5,380 feet. The well flowed by heads, a fair commercial production being indicated. This will be taken between two strings of casing and drilling continued to the deep lime horizon. At last reports the well was at 5,391 feet with increasing gas and oil production. Mayland's No. 1 is the most southerly producing well, about a mile south of Home Oil Co.'s No. 1. It was started some time ago by the Mayland Oil Co. of Calgary, which recently arranged for completion of the well by Imperial Oil, Ltd. Drilling since then has been under supervision of J. H. McLeod, Imperial's western production manager. The well passed through the Dalhousie sand without securing commercial production, and it is still uncertain whether a new sand has been tapped, or whether the present production is in the top of the lime, where Home Oil Co.'s No. 1 secured a wet gas flow of 3,000,000 feet with some crude naphtha recovery. General opinion is, however, that a stray sand has been tapped, which may have an important bearing on the possible productivity of the south end. Mayland's No. 2 has been located in LSD 8, Section 17-19-2w5, and will probably start rigging up as soon as No. 1 is definitely finished.

Home Oil Operations

Home Oil Co.'s No. 1, LSD 10, Section 20-19-2w5, recently broke its own record by making a crude naphtha recovery of 868 bbls. a day. Home's No. 2, LSD 14, Section 20-19-2w5, is drilling in the lime at 5,353 feet, corrected measurement showing that it got the lime at 5,345. A heavier derrick and diamond drill outfit is being used to bring it into production. Home's No. 3, same LSD, is standing cemented at 5,033 feet, and will be drilled in as soon as No. 2 is finished. Home's No. 4, Section 20-19-2w5, is at 3,635 feet with 10-inch casing lowered at 2,956. North West-Associated's

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New Salt Dome Prospects Discovered

First Oil in Terrebonne Parish Followed by Gas Blow-Out East of Dog Lake Bayou. Deep Dome Prospect in Cedar Bayou

By Neil Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., May 27. — Finding of the first oil in Terrebonne Parish on one of the number of new salt dome prospects recently discovered in southeastern Louisiana and a gas blowout on another similar prospect in the same parish shifted interest of Coastal operators to that part of the Gulf Coast the past week. However, during the week, the deep sand on the south side of Humble yielded another good producer; two good wells were added at Sulphur Dome; and, at Jennings two deep tests, the two deepest holes ever drilled in the Gulf Coast, were trying to test oil showing sands. At Barbers Hill another deep test was coming in and five others were at the deep pay level, and at DeWalt, two wells were waiting to be tested. In addition a rank wildcat dome test in the extreme southeastern tip of Louisiana had picked up an oil sand and had cemented casing to test.

In Terrebonne Parish, The Texas Company's No. 1-A Dog Lake Bayou, Section 6-22s-16e, was standing 800 feet in 20 gravity oil from sand at a total depth of 1,062 feet. Efforts to swab the well down failed to lower the level of the oil and the test probably will be put on the pump. This test earlier in the week had blown out making an estimated 10,000,000 feet of gas daily but it bridged over. The 6⅝-inch casing was cemented at 991 feet. The well is expected to make a 20 to 30-bbl. pumper although some predictions place it as high as 200 bbls.

Another New Dome Prospect

Following this discovery, The Texas Company's No. 1-B Bay Coon Road, on another new dome prospect about 15 miles to the east of the Dog Lake Bayou Dome, blew out Friday night from a shallow sand at 615 feet. Late Saturday this well was still blowing wild.

These domes are two of seven salt domes discovered in Terrebonne Parish by the Louisiana Land & Exploration Co. during 1928, which were taken over by The Texas Company for development, the latter company agreeing to drill a minimum of four tests on each dome. These are the first tests drilled on their respective dome prospects.

Terrebonne Parish is in the extreme southeastern part of Louisiana in a territory which has been little prospected by the driller and previous to 1928 had not been prospected to any extent in search of salt domes. The only other production in that parish, or even in the adjoining parish is the Houma gas field, slightly more than 20 miles to the north. Only gas has been found in that field. All these new domes are believed to be very shallow but the sands on the two mentioned domes are thought to overly the dome from 600 to 800 feet.

Although the commercial value of these two new wells can not be determined at this time, their importance lies in the indications of production on two of the more recently discovered domes on the coast and in the fact that these showings are in the first tests on two new domes in virgin territory as a result of a systematic geophysical exploration. Another one of these new domes, Port Barre, southern Terrebonne Parish, proved a dome only several weeks ago when its first test went into salt. These discoveries have done much to prove the value of geophysical instruments in the locating of particularly shallow domes.

Deep Wildcat Tests

What promises to be of more far-reaching importance are two deep wildcat tests on the east side of the old Jennings Field. These tests, Yount Lee Oil Co.'s No. 6 Houssierre-Latrielle and the same company's No. 4 Crowley, are the two deepest holes ever drilled on the Gulf Coast. Each, one to the southeast and the other to the northeast, are in sands showing oil. No. 6 Houssierre-Latrielle, the southeastern test, and the deeper, is at a total depth of 7,282 feet. Efforts are being made to set screen but because of gas pressure considerable difficulty has been encountered. No. 4 Crowley on the northeast has cemented casing at 7,009 feet with bottom of the hole at 7,115 feet.

At Humble, South Texas Production Co.'s No. 4 Morris, in the northeast corner of the W. T. Charles Survey and in the deep sand pool on the south side of the field, was brought in Thursday flowing initially at the rate of 2,000 bbls. daily from sand at 4,770 feet. Thirty-three feet of 6⅝-inch screen was set in the hole. Like other deep oil, the gravity is high, testing 46 degrees at 83 degrees. This area is one of the most active in the Gulf Coast. Nine other rigs are running in this vicinity. Four deep producers have been completed.

Union Sulphur Co. boosted its output on the Sulphur Dome of Calcasieu Parish by the completion of two good wells, Nos. 744 and 745 fee, the former flowing an estimated 2,000 bbls. and the latter 1,000 bbls. This is the first new production on this dome in two months.

At Barbers Hill, Unice Oil Co.'s No. 1 Feldman, a deep test on the east side of the dome, was trying to come in Saturday. It was slopping over some fluid from a sand at 5,221 feet. It is not expected to make as large a well as the previous deep sand producers. Five other deep tests at Barbers Hill were being watched as the week closed, all of which were waiting to be tested or were due on the producing sand. That deep production also may be exteneded to the north side of the dome was indicated in Mills Bennett Production Co.'s No. 1 Barber which was showing oil at a total depth of 5,578 feet. The other deep production is on the east and on the southwest.

Other Completions

Navarro Oil Co.'s No. 3 Hausler at Big Creek came in Saturday and made only gas. This is from sand at 3,233 feet. Pressure of the well is 550 pounds. Other completions of the week were: Sun Oil Co.'s No. 3 Vincent, Hackberry, pumping 50 bbls.; Vacuum Oil Co. and Gulf Refining Co.'s No. 5 Bayou D'Inde, Lockport, flowing 400 bbls., of which all but 8 per cent was oil, sand 4,421 feet; Gulf Production Co.'s No. 80 Phoenix, Hull, flowing 600 bbls., 3,142 feet; this company's No. 34 Davis, Big Creek, pumping 125 bbls.; The Texas Company's No. 5 Wheat, Big Creek, flowing 536 bbls., 3,245 feet; Ada Belle Oil Co.'s No. 123 Honeymoon, Batson, deepened to 1,077 feet, pumping 300 bbls. of fluid, 75 bbls. oil; Yount Lee Oil Co.'s No. 100 McFaddin, Spindletop, flowing 800 bbls. through tubing from approximately 4,010 feet; this company's No. 13 Gladys City, Spindletop, flowing 1,400 bbls., 3,717 feet; No. 90 Gladys City, Spindletop, flowing 235 bbls. through tubing, 2,077 feet; Gulf Production Co.'s No. 17-B Blakely, Blue Ridge, pumping 20 bbls., 3,966 feet, and Shell Petroleum Corp.'s No. 9 Watkins, Black Bayou, Cameron Parish, pumping 22 bbls., 981 feet. The latter found the first oil on that dome although since it has been rigging up to pump another well, a deep test, has been completed.

Abandonments included Gulf Production Co.'s No. 1 Belle Helene, first test on the Darrow Dome prospect in Ascension Parish. This test was deep going to approximately 5,600 feet. Yount Lee Oil Co. abandoned a deep wildcat in Jefferson County, its No. 1 Nona Mills, Hillebrandt Survey. This hole went to 6,622 feet but was abandoned when drill stem stuck. The Texas Company abandoned No. 1 Pleasants on the northeast side of Boling at 4,140 feet in heaving shale, and Rio Bravo Oil Co. abandoned a workover test, No. 9-B Settegast, at Pierce Junction.

Miscellaneous Texas Wildcats

Austin County—Flanigan & Mewis' No. 1 A. E. Mewis, east of Bellville and in the Raccoon Bend district, is shut down at 3,498 feet.

Brazoria County — Shell Petroleum Corp.'s No. 4 Allen, Allen Dome, is sidetracking in hard sand at 5,111 feet. Meyers and associates' No. 3 Davidson, Clemens Dome, is in gyp at 930 feet. Empire Gas & Fuel Co.'s No. 3 Brock, Stratton Ridge, is drilling sand and lime at 3,496 feet. Humphreys Corp.'s No. 1 Bryan, Bryan Mound, is drilling hard sand and boulders at 3,149 feet.

Chambers County—Pure Oil Co.'s Nos. 2 and 3 Mayes, Lost Lake, are shut down because of high water. The former is at 1,992 feet and the latter at 1,871 feet.

Fort Bend County—Humble Oil & Refining Co.'s No. 1 Miller, Rosenberg Dome prospect, is rigged up. South Texas Petroleum Co.'s No. 1 Winkleman, Needville, is drilling shale and sand at 4,821 feet.

Harris County—Humble Oil & Refining Co.'s No. 1 Irvin, Mykawa, is fishing at 3,810 feet. This company's No. 5 Warren, Hockley, is drilling sandy shale at 4,594 feet, and its No. 1 Woodburn at Genoa is drilling sticky shale at 238 feet. Little York Oil Co.'s No. 1 Davis, Little York district, is drilling shale and sand at 3,827 feet.

Jackson County—Wright Brothers' No. 2 Lee is drilling gumbo at 512 feet.

Jefferson County — Gulf Production Co.'s No. 7 Bordages, Fannette Dome, has drilled plug. Bottom of hole is 5,475 feet. No. 11 Thomas has drilled plug at 5,265 feet. Nederland Oil & Development Co.'s No. 1 Young, Nederland, is standing at 2,105 feet. Shell Petroleum Corp.'s No. 1 Heisig, Hampshire, is drilling sticky shale and lime at 4,492 feet. The Texas Company's No. 1 Pipkin has set 4¾-inch casing at 5,900 feet. Bottom of hole is at 5,943 feet in shale and sand. Yount Lee Oil Co.'s No. 1 Nona Mills, Hillebrandt Survey, has been abandoned as a junked hole, bottom of which was at 6,622 feet.

Liberty County—Humble Oil & Refining Co.'s No. 5 Sterling, Moss Bluff, is spudding. Gulf Production Co.'s No. 1 Boyd, Hankamer district, is drilling gumbo at 2,467 feet.

Matagorda County—Crossland and associates' No. 1 Hawkins, Shepherds Mott, is in heaving shale at 5,260 feet.

Waller County—The Texas Company's No. 1 Young, Irons & Grace Survey, is drilling shale and boulders at 3,679 feet.

Cedar Bayou Dome?

The reported checking of another deep salt dome with the seismograph by the Shell Petroleum Corp. in the Cedar Bayou district, east of Houston, resulted in an active leasing flurry during the week in which a number of the larger companies obtained blocks centering around the Ellis Survey. The reported dome lies approximately 2½ miles west of the Barbers Hill Dome. Discovery of the dome has not been checked definitely as the seismograph readings indicated only a faint trace of a dome.

Daily average production of Coastal fields again reflected a decrease, a drop of 3,199 bbls. being recorded. Southwest Texas fields, however, continued their steady climb due to the Bruner district. Figures for the two divisions for the week ending May 25 were:

GULF COAST
Average Daily Production Week Ending May 25

Texas	
Allen	9
Barbers Hill	8,228
Batson	1,421
Big Creek	2,147
Blue Ridge	3,527
Brenham	225
Boling	1,756
Clay Creek	2,478
Damon Mound	675
DeWalt	11,344
Fannette	593
Goose Creek	5,873
High Island	1,417
Hull	8,741
Humble	6,500
Jasper	25
Markham	435
Nash	500
North Dayton	430
Orange	2,953
Orchard	136
Pierce Junction	19,219
Port Neches	500
Raccoon Bend	4,600
Saratoga	922
Sour Lake	2,704
South Liberty-South Dayton	5,576
Spindletop	27,975
West Columbia	6,546
Total Texas	127,455
Total previous week	130,288
Decrease	2,833
South Louisiana	
Anse La Butte	50
Bayou Bouillon	217
Black Bayou	217
Edgerly	909
Jennings	928
Hackberry	5,565
Lockport	3,844
Sorrento	295
Starks	450
Sulphur	2,300
Sweet Lake	490
Vinton	3,955
Welsh	36
Total Louisiana	19,255
Total previous week	19,621
Decrease	366
Total Gulf Coast	146,710
Total previous week	149,909
Decrease	3,199
Southwest Texas	
Dale	508
Branyon	27
Bruner	48,062
Gonzales	81
Kingsville	238
Larremore	174
Luling*	11,938
Lytton Springs	1,026
McMullen	70
Medina	30
Mirando District	12,137
Refugio	2,121
Somerset	1,888
Yoast	1,742
Total	80,042
Total previous week	77,673
Increase	2,369

*Includes Caldwell County, 7,788 bbls.; Guadalupe County, 4,150 bbls.

Jennings—Acadia Parish

Yount Lee Oil Co.'s No. 6 Housierre-Latrielle, deep wildcat on the southeast side of the dome, still was trying to set screen as the week closed. Efforts are being made to set two joints of screen at a total depth of 7,282 feet but so far operators have been unable to get the screen down. This is the deepest hole ever drilled on the Gulf Coast. Yount Lee Oil Co.'s No. 4 Crowley, wildcat on the northeast side of the dome, and the second deepest hole ever drilled on the coast, also is in oil sand at a total depth of 7,115 feet, and has set 7-inch casing at 7,009 feet.

Miscellaneous Louisiana Fields

At Bayou Bouillon, St. Martin Parish,

(Continued on Page 129)

Had Halliburton relied solely on patent protection to maintain its business, it would have reserved to itself the hundreds of thousands of dollars spent in research, development and improvement. But Halliburton has always realized that *permanent* business is founded on the bedrock of service. The result of this policy is a degree of cementing efficiency and organization undreamed of when the Perkins Patent went into effect.

HALLIBURTON OIL WELL CEMENTING CO.
Duncan, Oklahoma

Refugio Field Shows More Promise

Test That Looks Like an Oil Well in 3,700-Foot Sand Extends Field Quarter Mile Southeast. Gas Well Blows Into Oil

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., May 27.—Refugio Field which has been furnishing much of the interest in proven areas of Southwest Texas since the Joe Bruner Field settled down to a well defined proposition, offers more of interest this week. The Mission Drilling Co.'s No. 1 J. F. B. Heard in the southeast corner looks very much like an oil well in the 3,700-foot sand extending the field a quarter of a mile southeast, and the Houston Gulf Gas Co.'s No. 7 Fannie Heard, which disappointed everybody by coming in originally as a gas well only 300 feet from a good oil well on the Nellie Cummings, has blown in as an oil well and looks like it was going to be a good one.

The Mission Drilling Co.'s No. 1 J. F. B. Heard is a half mile east and a little north of No. 7 Fannie Heard and No. 1 Nellie Cummings, and is a quarter of a mile southeast of a line drawn between these on the southwest and No. 1 Ryals and No. 1 Fox heirs on the northeast. All of these wells, however, are on the southeast corner of the field. Mission Drilling Co.'s No. 1 J. F. B. Heard set casing at 3,696 feet and had a fine core and will be drilled in within a few days. Other than the extension of the field by the Mission Drilling Co.'s No. 1 J. F. B. Heard the most interesting test in the field is probably the Houston Gulf Gas Co.'s No. 7 Fannie Heard, a west offset to No. 1 Nellie Cummings. The latter was the first oil well drilled in that part of the field and extended it a mile east so far as oil production in the 3,700-foot sand is concerned and a half mile east of the nearest 3,200-foot gas well. No. 7 Fannie Heard, a west offset and on the proven side of No. 1 Nellie Cummings, came in gas but last week it went into oil though still making considerable gas.

The Refugio Development Co.'s No. 1 City Street, at the north end, is standing, held up by a court injunction restraining it from bringing it in. The injunction was made permanent and will likely be appealed. The test is nearly to the oil sand and looks like an oil well, but the litigation seems likely to be long drawn out and so the test is being dropped by scouts. Adjoining leaseowners north and south of it will likely, however, start tests 150 feet from their lease lines.

Lower Formations Larger

Operators are giving this field more and more attention. The lower formations seem to cover more acreage than the upper and shallower sands and the fault line theory for the field does not seem to be sufficient. It is a dome or anticline and the field has extended so wide and long that it promises to be very profitable. Also there is some acreage very close in still in the hands of the original fee owners though the bulk of the acreage is under lease. The Mission Drilling Co.'s No. 1 Powers, on the east side of the townsite, is still at 3,624 feet where it was a week ago fishing for a core barrel. It is more than a mile east of nearest production on the Ryals and at 3,624 feet had a sand that looked favorable. The well on the west side, Mission Drilling Co.'s No. 3 Rogers, which missed the 3,700-foot sand, is standing at 4,650 feet with some trouble but not yet quitting. On the south side of the city of Refugio and a mile east of production Mission Drilling Co.'s No. 1 Mitchell finally quit at 4,145 feet but all due to losing the hole. The rig has been skidded 300 feet west and a new hole will be started. This test failed to make a well at 3,700 feet but the owners are convinced there are sands at that location which will pay off and will try again. If any one of these outside wells pops into something interesting it will open up a lot of new territory.

Joe Bruner Field

The Joe Bruner Field offers only added production from the drilling of additional wells. The field undoubtedly pinches out at the north side of the James Hinds Survey at a point about a half mile north of the most northerly producer which is the Humble Oil & Refining Co.'s No. 1 Trap Briscoe and the Humble on the Trap Briscoe lease and Gulf Production Co. on the New lease north of it are the only companies with acreage inside the probable pay. In a faulted country there is always the chance for another pool to be opened up on an extension of the fault but everything north of the James Hinds Survey is wildcat territory. The field as finally defined is approximately 6½ miles long and the trend of the field or axis is a little north of due northeast starting on the southwest from just a little outside the city of Luling and at the northeast end hitting the center of the north line of the James Hinds Survey.

Laredo District

There are five completions in the pools of the Laredo district but the most interesting and probably most important was the South Texas Production Co.'s No. A-4 Jennings in the Cerrito Blanco grant, a 30,000,000-foot gas well at 1,400 feet. It was plugged back from 2,200 feet. It is considerably south of anything in the Jennings gas field which is the interesting feature.

Of the other completions two were in the south end of the Albercas Pool, one the Rycade Oil Corp.'s No. 8 Yeager-Strohman in sand at 2,145-52 feet estimated 125 bbls. and the other the Sun Oil Co.'s No. 12-A Yeager-Strohman, an east offset to it in sand at 2,153-57 feet estimated at 150 bbls. These wells are next to the two most southerly producers and have been standing on the sand for several weeks.

Humble Oil & Refining Co. completed its No. 16 Kohler, a 12,000,000-foot gas well in sand at 1,748-52 feet, a slight extension of the Kohler gas pool and Magnolia Petroleum Co. completed its No. 2 Hahl in the Schoolfield-O'Byrne Pool in Duval County, as a 100-bbl. oil well in sand at 2,342-46 feet, a quarter mile extension southeast.

In the Usher Carson oil section of the Carolina-Texas gas field Trapshooter Reilly got 6 trebles of oil and salt water in sand at 2,132-36 feet and at 2,653 feet got salt water. Trapshooter Reilly is now drilling at 2,850 feet. His well is No. 1 Benavides, 150 feet south of CNL of Survey 685. George S. Marshall has not yet rigged up for his test and W. R. Shankle is waiting for a rig to drill in at 3,070 feet.

Humble Field—Duval

Humble Oil & Refining Co.'s No. 16 Kohler, Survey 144, 225 feet south line, 165 feet west line, is drilling at 1,748-52 feet in sand; No. 17 Kohler, Survey 339, located 165 feet north and west lines, is drilling at 3,085 feet; No. 22 Kohler, Survey 395, located 495 feet west line and 165 feet north line, bailed dry at 1,754-56 feet; No. 23 Kohler, Survey 404, located 1,485 feet south and west lines, has derrick up; No. 24 Kohler, Survey 423, 165 feet north and west lines, is drilling at 1,705 feet; No. 25 Kohler, Survey 172, is located 165 feet north and west lines; No. 26 Kohler, Survey 251, 495 feet east line and 165 feet north line, has derrick up.

Driscoll Field

Robert Driscoll's No. 16 Driscoll, Survey 448, 2,650 feet east line, and 4,000 feet north line, is drilling at 1,000 feet.

Schoolfield & O'Byrne Pool

Magnolia Petroleum Co.'s No. 7-B Hahl, Survey 61, 650 feet south line and 2,950 feet east line, is rigging up; No. 2 Hahl, Survey 250, Block 24, 150 feet north and east lines, is drilling at 2,346 feet in sand. G. M. Partee's No. 2 Moody, Survey 60 is a location, 450 feet west line and 150 feet north line; No. 3 Moody, Survey 60, located 1,548 feet north line and 150 feet west line, is moving on.

Randado Field—Jim Hogg

Magnolia Petroleum Co.'s No. 42 Merchants State Bank, Survey 235, 330 feet west line and 4,254 feet north line, is drilling at 2,195 feet. Randado Oil Corp.'s No. 35 Palacious, Survey 291, Block 2, 150 feet south line and 450 feet east line, is standing at 100 feet.

Henne-Winch & Farriss Pool

George S. Marshall's No. 4 Holbein, Survey 11, Block 10, Share 3, is a location 150 feet south and west lines; No. 5 Holbein, Survey 15, Share 3, Block 10, is a location 150 feet north and west lines.

Schott Field—Webb

Livingston & Payne's No. 1 Guerra-Ochoa, Survey 58, 917 feet east line and 470 feet south line, is testing at 1,630-35 feet in sand.

Reiser Field

W. O. Wheatley's No. 1 Wheatley, Survey 1,569, Block 3, 848 feet north line and 305 feet east line, is preparing to resume drilling at 2,805 feet.

Albercas Field

Sun Oil Co.'s No. 12-A Yeager-Strohman, Share 5, 4,675 feet north line and 150 feet west line, has sand and is standing at 2,153-55 feet. Rycade Oil Corp.'s No. 8 Yeager-Strohman, Share 5, 1,950 feet north line and 150 feet east line, is standing at 2,145 feet.

Carolina-Texas Field

W. R. Shankle's No. 1 Webster, NE SE, Survey 684, 150 feet south and west lines, at 3,045 feet, shows some oil and looks like a small well, and is moving in a rig. Trapshooter Reilly Oil & Royalties Co.'s No. 1 Benavides, NE NW, Survey 685, 150 feet north and east lines, is drilling at 2,500 feet. George S. Marshall's No. 1 Webster, Survey 684, is a location 150 feet north and east lines.

Magnolia-Cole Field

Cole Petroleum Co.'s No. 67 Benavides, Survey 412, Block 12, 313 feet east line and 160 feet north line, is standing at 38 feet. Magnolia Petroleum Co.'s No. 1 J. G. Valdez, Survey 754, Block 15, 150 feet south and west lines, has derrick up.

Cole Gas Field

Trussell-Cezeaux-Putman's No. 2 Bruni, Survey 10, Block 40, located 150 feet northeast and northwest lines, is drilling at 2,000 feet.

Jennings Field—Zapata

South Texas Production Co.'s No. 4-A Jennings, Cerrito Blanco grant, 8,250 feet southwest lines and 6,825 feet southeast lines, is testing at 1,400 feet; No. 1 Roy Jennings, Mira Flores Grant Survey, located 18,055 feet southwest lines and 11,040 feet southeast lines, also 4,236 feet south and 63 degrees west of No. 4, is a location. O. W. Killam's No. 4 Hinnant, Survey 74, located 980 feet from west line and 150 feet from south line, is drilling at 2,010 feet. Magnolia Petroleum Co.'s No. 1 Cuellar, Survey 246, located 660 feet northeast lines and southeast lines, is drilling at 1,425 feet. W.

MICHIGAN STATE GEOLOGIST EXPECTS WILDCATTING ALL OVER THE STATE

By Special Correspondent

MUSKEGON, Mich., May 25.—With the Muskegon Field rapidly drilling up so far as production in the known sands and proven area is concerned, operators are starting more wildcat work throughout western Michigan and the whole State. State Geologist R. A. Smith of Lansing has predicted that the coming few months will see "the most active exploration of oil and gas resources in the history of Michigan."

"There will be wildcatting all over the State and practically all the large companies are actively interested in leasing and exploration," he said. "It is probable this exploration will result in the discovery of one or more new pools before the close of this year. A most promising showing made already by several test wells indicates they may develop into profitable producers."

Mr. Smith declared that Mason, Oceana, Newaygo and Van Buren Counties are the most likely areas for future development outside of the fields at Muskegon and in Midland and Isabella Counties near Mount Pleasant. He believes some of the best possibilities in the State are in the Mount Pleasant Field "where the formations are deep and development slow. It is a very promising field. Its wells are good producers as Michigan wells go and the field bids fair to rival or outdo those at Muskegon."

Concerning the situation generally in Michigan, Mr. Smith said one of the most hopeful signs is "that as wildcatting develops there is more and more evidence of folding rock beds, the presence of which indicates the possibilities of oil pools."

But while wildcat activity in western Michigan and other parts of the State is rapidly increasing in scope there are few other counties than Muskegon in which new producing oil and gas wells have been completed.

Mason County, to the north about 50 miles, and Van Buren County to the south, each boast good shows of oil and gas in various formations.

Muskegon Area

In Muskegon County, where drilling activity is still centered, there were 13 completions during the week, only 2 being dry, 10 were oil producers in the Dundee or upper Traverse and 1 was a dry gasser in the lower Traverse.

Seven of the new completions are in Laketon Township, and six are in Muskegon Township. Each of the townships had one dry hole and each had a new upper Traverse oil well, of which there are fewer additions as the life of the field is extended.

The two largest new completions are in Laketon Township and will make 35 bbls. an hour or 840 bbls a day. They are the Johnson Oil Refining Co.'s No. 4 John Thompson, SW NE Section 12-10-17, and the Dixie Oil Co.'s No. 5-D Kate McLaughlin, NW SW Section 12-10-17. The former had the Dundee at 2,038-45 feet and the latter at 2,054-58 feet.

The Johnson Oil Refining Co.'s No. 6 John Thompson, SW NE Section 12-10-17, made 300 bbls. initial at 2,053-58 feet. The Wiser Oil Co.'s No. 1 Osgood,

(Continued on Page 69)

E. May and Alamo Drilling & Leasing Co.'s No. 1 Cuellar, Survey Cerrito Blanco grant, located 1,470 feet south of Killam's south line, is drilling at 300 feet. Ray & Holder's No. 1 Cuellar, Survey Cerrito Blanco, located 150 feet northwest lines and 446 feet southwest lines, is moving on.

Somerset Field—Atascosa

Schimmel Production Co.'s No. 3 H. F. Gayle, C.E.P.I.&M. Survey, Block 2, located 946 feet east of No. 1, is a location.

Dobrowolski Field—Bexar

Amelia Balzart's No. 3 J. P. Adams, has derrick up offsetting No. 1 Dobrowolski. Dingman Drilling Co.'s No. 1 Walter Gembler, A. Mauchaco Survey, located 1¼ miles southwest of No. 1, 2,250 feet north line and 152 feet east line, spudded in.

Somerset Field

American Central Oil & Gas Co.'s No. 4 Mary McConnell, W. G. Baker Survey No. 138, located 806.6 feet east line and 685.5 feet south line, has rigged up and is standing. W. H. Kennon's No. 2 fee, Survey 4, located 1,500 feet north 15 degrees east of No. 1, is drilling at 983 feet.

Joe Bruner Field—Caldwell

Tips de Armond's No. 2 Carter, Gerren Hinds Survey, 170 feet west line and 147 feet north line, is drilling at 1,005 feet, showing some gas. E. R. Brawn and C. O. Miller's No. 2 R. W. Carter, Gerren Hinds Survey, 150 feet north and west lines, has derrick up. John T. Callahan and others' No. 1 W. Ellison, House Survey, located 750 feet east line 150 feet south line, has derrick up. Cranfill-Reynolds' No. 3 Hanson, James Hinds Survey, is cleaning out at 2,690 feet; No. 4 Northcutt is rigging up. Forest Oil Co.'s No. 1 Bridges waiting for pump at 2,739 feet; No. 1 Mrs. Moore is drilling at 825 feet. Gulf Production Co.'s No. 3 Northcut, J. Hinds Survey, located 450 feet northeast, 50 feet northwest lines, swabbing at 2,671 feet; No. 4 Northcut, J. Hinds Survey, located 300 feet southwest of No. 4, is at 2,670 feet waiting on standard rig; No. 5 J. L. Northcut topped Eagleford at 2,435 feet. T. C. Hadley's No. 1 J. M. Hanson, James Hinds Survey, located 150 feet south and east lines, shut down at 2,640 feet; No. 1 Merriwether, A. Floyd Survey, located 119 feet north line, 150 feet east line, at 2,720 feet plugged back, showing water and very little oil; No. 2 Merriwether, A. Floyd Survey, 450 feet from west line in center of tract, is waiting on cement at 2,742 feet. Humble Oil & Refining Co.'s No. 3 M. Briscoe is drilling in chalk at 2,390 feet; No. 4-A M. Briscoe, located 206 feet north line, 150 feet east line of acre lease, has derrick up; No. 1-B M. Briscoe is drilling in shale at 1,748 feet; No. 1 C. F. Dye, James Hinds Survey, is running rods and tubing at 2,678 feet; No. 1-B Floy Gray is drilling in shale at 2,150 feet; No. 2-C Floy Gray is rigging up; No. 4 L. G. Hanson, James Hinds Survey, located 150 feet out of northeast corner, is waiting on cement at 2,711 feet; No. 1 Addie Hinds, James Hinds Survey, located 226 feet north line, 191 feet west line, is waiting on cement at 2,660 feet; No. 3 Addie Hinds, James Hinds Survey, is drilling in shale at 307 feet; No. 2-B Johnson is waiting on cement at 2,675 feet; No. 3-B Moses & Baggett, S. Shupe Survey, located 150 feet east line and 1,050 feet south line, is waiting on cement at 2,670 feet; No. 4-B Moses & Baggett, S. Shupe Survey, located 1,514 feet south line and 150 feet east line, is drilling in shale at 1,270 feet; No. 8-B Moses & Baggett, Shupe Survey, is rigging up; No. 9-B Moses & Baggett has derrick up; No. 1 J. A. Northcut, at 2,744 feet, is ready to swab; No. 1 J. L. Northcut, located 226 feet north line and 205 feet west line, is waiting on cement at 2,655 feet; No. 3 J. L. Northcut is rigging up; No. 1-B Clyant Smith, at 2,138 feet, shut down because of fire at Shell's No. 1 Clyant Smith; No. 2-A J. R. Tiller, James Hinds Survey, located 300 feet north of No. 1-A and 264 feet to east line of lease, set casing in Georgetown at 2,680 feet; No. 4-A J. R. Tiller, at 2,055 feet, is fishing; No. 1-B J. R. Tiller, located 150 feet west line and 1,050 feet south line, is running rods and tubing at 2,701 feet; No. 2-B J. R. Tiller, located 150 feet east of road and 219 feet north line, is waiting on cement at 2,707 feet; No. 3-B J. R. Tiller, James Hinds Survey, located 150 feet northwest corner, is waiting on cement at 2,710 feet; No. 3 Wright is drilling in shale and boulders at 1,095 feet. Lutex Oil Co.'s No. 5 Wilson, A. Floyd Survey, at 2,702 feet, is waiting on pump. Swearingen trustee's No. 1 Caldwell County land, James Hinds Survey, is shut down due to litigations. Morgan-Duke's No. 2 Cora Malone, A. Floyd Survey, located 300 feet southwest of No. 1, is partially rigged up. Shell Petroleum Corp.'s No. 5 New, at 2,346 feet, is shut down for water; No. 6 R. W. Malone, A. Floyd Survey, located 700 feet south and east lines, is location; No. 1 Clyant Smith, located 150 feet east and south lines at 2,302 feet, fire out and is rebuilding derrick and rig. H. J. Powell, trustee's No. 2 Cora Malone, A. Floyd Survey, located 300 feet south of No. 1 and 150 feet west line at 2,650 feet, is cleaning out hole. The Texas Company's No. 8 Merriwether is drilling in Edwards at 2,774 feet. Thurman & Brown's No. 1 A. C. Bridges, A. Floyd Survey, located 100 feet east line and in center of tract, 150 feet south line, is waiting on pump at 2,748 feet; No. 1 Beversdorff, A. Floyd Survey, 150 feet southeast lines and 131 feet southwest lines, is location.

Branyon Field

United North & South Development Co.'s No. 1 F. Blundell, R. B. Jarmon Survey, located 150 feet north line and 318 feet east line, is location.

Dale Field

The Texas Company's No. 2 J. Moore, J. Gilbert Survey, located 600 feet northwest lines and 1,600 feet southwest lines, is drilling in shale at 1,400 feet.

Kingsville Field—Kleberg

Humble Oil & Refining Co.'s No. 4 Flato, Survey 40, Block 10, located 250 feet east line and 450 feet north line, is drilling in hard sand at 5,725-28 feet.

Cartwright Field—Live Oak

Houston Oil Co.'s No. 1 T. G. Parr, J. McMullen Survey, located 532 feet southwest lines and 635 feet northeast lines, is drilling at 2,000 feet.

Agua Dulce Field—Nueces

Agua Dulce Oil & Gas Co.'s No. 1 Otto Wolters, Section 34, is standing at 2,047 feet. R. & G. Corp.'s No. 1 Brown, Section 87, is location; No. 2 Ed Allen, location, Lot 5, Section 6, about 1,900 feet east of No. 1, has derrick up.

Refugio Field—Refugio

Benedum & Trees' No. 4 Claude Heard, 600 feet south of No. 3, is drilling at 1,197 feet. Houston Gulf Gas Co.'s No. 1 Adkins, located 500 feet north of Shelly line, is location; No. 3 Adkins, at 464 feet, is setting surface casing; No. 5 Claud Heard is reworking; No. 4 Holmes Heard is drilling at 2,187 feet; No. 2 Rooke, located 700 feet north of the No. 1, is drilling in shale at 3,234 feet; No. 5 Ryals is location. Houston Oil Co.'s No. 6 W. Heard, located 517 feet west of No. 5, is drilling at 2,623 feet; No. 7 W. Heard, located 150 feet south and east lines, is running surface casing; No. 6 Rooke is reworking. Mission Drilling Co.'s No. 1 J. F. B. Heard, located 2,000 feet east of No. 1 Cummins, 150 feet south of river, set casing at 3,696 feet; No. 1 Powers, located 150 feet south line is fishing for core barrel head at 3,623 feet; No. 3 L. M. Rogers, at 4,650 feet, is standing; No. 1 T. P. Shelly is drilling at 1,250 feet. Refugio Development Co.'s No. 1 City of Refugio, at 3,400 feet plugged, standing showing oil, by permanent injunction. W. L. Pearson's No. 1 Fox estate, Block 4, is location. Saxet Gas Co.'s No. 7 Claude Heard, located 150 feet west line of lease, at 3,694 feet, is deepening for oil.

Sun Oil Co.'s No. 1 Rea, located 150 feet north and west lines, has derrick up and rigging up machinery.

COMPLETIONS

Caldwell County

Gulf Production Co.'s No. 2 J. L. Northcut, J. Hinds Survey, completed at 2,682 feet, pumping; no gauge.

Humble Oil & Refining Co.'s No. A-1 J. R. Tiller, J. Hinds Survey, completed at 2,701 feet, swabbing 462 bbls.

Humble Oil & Refining Co.'s No. 2 Addie Hinds, J. Hinds Survey, completed at 2,694 feet, swabbing 1,200 bbls.

Refugio County

Houston Gulf Gas Co.'s No. 7 T. P. Shelly, completed at 3,707 feet; initial production 500 bbls.

Duval County

Magnolia Petroleum Co.'s No. 2 Hahl, Survey 250, Block 24, completed at 2,346 feet for 100 bbls.

Humble Oil & Refining Co.'s No. 16 Kohler, Survey 144, completed at 1,752 feet for 12,000,000 feet of gas.

Webb County

Sun Oil Co.'s No. 12-A Yeager-Strohman, Share 5, completed 2,157 feet; making 150 bbls.

Rycade Oil Corp.'s No. 8 Yeager-Strohman, Share 5, completed at 2,152 feet making 125 barrels.

Zapata County

South Texas Production Co.'s No. A-4 Jennings, Cerrito Blanco grant, completed at 1,400 feet; plugged back from 2,200 feet, bailing in for 30,000,000 feet of gas.

ABANDONED TESTS

Comal County

George Kruger's No. 1 Uecker, A. Gaytean Survey No. 198; was dropped as abandoned.

Caldwell County

Buchanan and others' No. 1 Trap Briscoe, P. B. McCearley Survey, abandoned at 3,428 feet, pulling casing.

Goliad County

Humble Oil & Refining Co's No. 1 Reitz, core test; abandoned at 1,250 feet.

Jackson County

The Texas Company's No. 1 W. C. Moore, Survey 208, has been abandoned at 4,071 feet.

Wright Brothers' No. 2 Classen has been abandoned.

Wright Brothers' No. 8 Drushell has been abandoned.

Kleberg County

Humble Oil & Refining Co.'s No. B-5 Dennett, Section 38, Block 19, has been abandoned dry at 3,344 feet.

Medina County

T. N. T. Drilling Co.'s No. 1-A Bendele, Survey 470½, has been abandoned at 1,528 feet; formations running low.

Nueces County

F. P. Zoch and Texas Production Co.'s No. 1 Carver, Caso Blanca, has been abandoned dry at 3,000 feet.

Duval County

Humble Oil & Refining Co.'s No. 17 Kohler, Survey 399, has been abandoned dry at 3,088 feet.

Webb County

W. O. Wheatley's No. 1 Wheatley, Survey 1569, Block 3, has been abandoned at 2,805 feet.

NEW LOCATIONS

Bee County

Mission Drilling Co.'s No. 1 Ray (completed first by Dr. Hewitt) is rigging up to deepen in new field near Pettus.

Caldwell County

Humble Oil & Refining Co.'s No. 3 T. A. Tiller is location.

Humble Oil & Refining Co.'s No. D-1 J. R. Tiller is location.

Humble Oil & Refining Co.'s No. C-2 J. R. Tiller is location.

Humble Oil & Refining Co.'s No. B-3 B. M. Johnson is building derrick.

Humble Oil & Refining Co's No. A-3 B. M. Johnson is building derrick.

Humble Oil & Refining Co.'s No. 3 Addie Hinds has set 43 feet of surface casing.

Humble Oil & Refining Co.'s No. A-2 Floy Gray is moving in rig.

Humble Oil & Refining Co.'s No. B-2 B. M. Briscoe is location.

Gulf Production Co.'s No. 13 Carter has derrick up.

Al Buchanan and others' No. 1 R. C. Teas, John R. Miller Survey is drilling at 1,800 feet.

Duval County

Magnolia Petroleum Co.'s No. 3 Hahl, Survey 250, Block 24, located 450 feet north line, 150 feet east line, is moving on.

S. & O. Oil Co.'s No. 3 Hahl, Survey 250, Block 23, located 150 feet south and east lines, is rigging up.

Humble Oil & Refining Co.'s No. 27 Kohler, Survey 399, located 215 feet north line, 165 feet west line, is rigging up.

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BLANCO COUNTY WELL ESTIMATED AT 40 BBLS. A DAY AFTER SHOT

By B. D. Stevenson

SAN ANTONIO, Tex., May 27.—Robert Rodson's No. 1 Glasscock in the center of Blanco County which ran into a showing of oil at 962 feet last November and has been shut down since started up a few days ago and cleaned out the hole and shot it with 35 quarts. There was considerable response and some estimated it as high as 40 bbls. a day. Casing was set to shut out water at 406 feet but there are water sands below that and there is some water showing now. The plan is to clean out and set casing in the rock somewhere around 944 feet, where the first showing was encountered. The test will then be deepened and possibly shot again.

Blanco County never attracted much attention from oil men and especially major companies before, evidence of which is that this is the first test ever drilled in the county for oil and it is the first showing of oil in the county. It is in the country north of the Balcones Fault zone and while there have been some who claimed there was no sound reason why oil should not be found on the other side of the fault line everyone seemed to think there were better chances elsewhere. It is also a rough country and hard to get into and one of the theories was that formations were too badly broken up in that territory. If it makes even a 5-bbl well it will mean a great deal to that country as some believe it is in the Pennsylvanian. The oil is reported to be about 38 gravity.

Before the shooting of the test last week there had been considerable interest aroused in that territory, and some blocks of acreage were assembled on the strength of the showing in the Rodson well before it was shot.

Nueces County

F. P. Zoch has either opened a new gas field or extended the Saxet Field in Nueces County. His No. 1 Baldwin, a mile southwest of nearest production topped a sand at 2,399 feet which is about the right depth for producing sands in the field. Casing has been set and it will be tested in a few days.

Jim Harper's No. 1 Tabor in Caldwell County, three-quarters of a mile west of the townsite of Lytton Springs (not to be confused with the Lytton Springs Pool a couple of miles south), is about a 25-bbl. well at 1,850 feet. Cranfill & Reynolds and Sun Oil Co. drilled one producer in the townsite several months ago and since then efforts to develop a pool failed till Harper went west. There is enough acreage uncondemned to make quite a pool. Production is in the Serpentine.

Fayette County

There is quite a little new activity in Fayette County around Muldoon, where Marshall & Moore are down 2,400 feet in their No. 1 Kerr. O. V. McIntire has leased 4,000 acres east of Muldoon, W. J. Kelly has leased a block south of Muldoon and J. G. Nelson has leased a block west of Muldoon and The Texas Company is using the seismograph around that part of the country.

Amphion Oil Co., close to the town of

(Continued on Page 132)

WRIGHT *forged steel* STUFFING BOX... CASING HEAD *with* SPLIT CASING RING

(Figure 1)

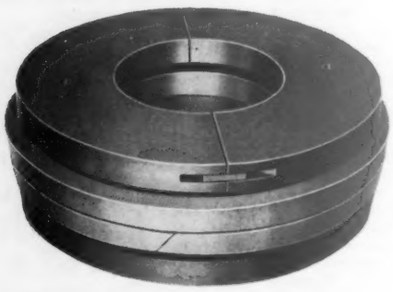
1. Body.
2. Combination split casing ring and follower.
3. Slips.

The WRIGHT HEAD *is* RIGHT

It is designed to withstand extremely high gas pressure and to support the casing in the deepest known wells today (May, 1929). The bowl is forged and turned from solid steel billet and may be built to fit any size of casing and with any desired outlet.

The combination split (2 piece) casing ring top and gland is made of very heavy steel castings, dove tailed and bolted together similar to our regular split casing ring. This member supports the inner string of casing by means of 4 forged steel slips or wedges, and the bottom of it is machined to form a gland which rests on the steel and lead packing in the bowl.

Figure 2 shows the arrangement of the lead and steel split packing rings, i.e., a split steel ring on the bottom then two split lead rings with joints overlapped, then a split steel ring on top. These split steel rings are provided with V shaped bosses to insure expansion of lead rings against the inner string of casing and the sides of the bowl.



(Figure 2)

Our patented slotted link feature, used in all O.I.W. split stuffing box casing head rings, which prevents one half of ring fouling on other half, is shown in Figure 3. This cut also shows the V Boss on the steel ring.

(Figure 3)

Oklahoma

Tulsa,

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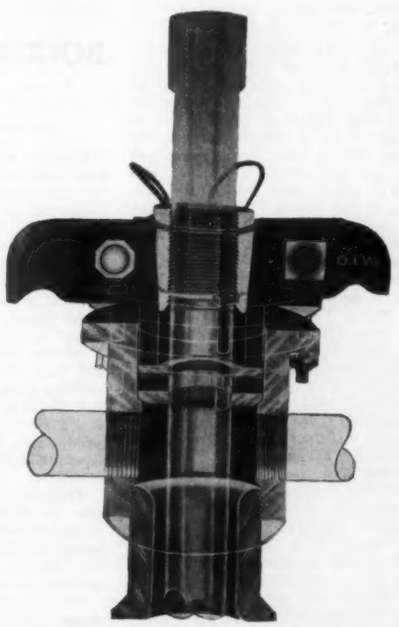
Patented SLOTTED LINK FEATURE in RING and DOWELED SPLIT GLAND prevents overlapping of ring under packing and facilitates assembling gland under heavy gas flow.



Iron Works

Okla.

California Situation Still Precarious

State Production Yet 100,000 Bbls. in Excess of the 1928 Average. Flush Production Continues Swelling Output

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., May 25.—Although daily production in California is approximately 40,000 bbls. below the 1929 high of 805,000 bbls. established on February 25, state production is still about 100,000 bbls. in excess of the 1928 average. Operators have arbitrarily shut in about 75,000 bbls. per day in conformity with Umpire F. C. van Deinse's curtailment orders, but even in spite of this substantial reduction the local situation is still in a rather precarious condition due to flush overproduction at Santa Fe Springs and Elwood and the possibility of a substantial increase at Kettleman Hills, where operators have not yet accomplished any tangible basis for curtailment. Refiners and pipe line companies are still adding to stocks of crude and refined oils at a substantial rate with no immediate relief in sight, unless the recently enacted gas conservation law is put into effect. This measure, which is primarily a gas conservation measure, will have a tendency to reduce crude oil production and will alleviate conditions by eliminating surplus production of crude oil and natural gas. Stocks of crude and refined oils held in Pacific Coast territory increased 3,351,333 bbls. during April, both light refinable crude and gasoline showing substantial accumulations, the former increasing 2,594,299 bbls. and the latter 802,813 bbls. Heavy crude and refinery residuum declined 81,020 bbls. while naphtha distillates, tops, were reduced 36,755 bbls. All other stocks, which includes kerosene, medicinal oils, asphalt and other refined products, were 71,996 bbls. higher at the close of the month.

Crude oil curtailment in California during April was not reflected to any substantial extent in state production as it was very late in the month before operators had perfected the mechanics of operation. It is obvious that state production would have been somewhat higher as the curtailment movement was getting well under way during the last few days of the month. Crude oil production totaled 23,295,060 bbls. during April, an average of 776,502 bbls. per day. This represents a decline of 8,167 bbls. from the March average, due principally to a decline of 11,840 bbls. per day at Santa Fe Springs. This field dropped from 170,171 bbls. in March to 158,331 bbls. daily in April, due primarily to a normal decline in Nordstrum and Buckbee zone production, together with the fact that a number of wells producing from these horizons were killed preparatory to being carried down to the more prolific O'Connell zone. Curtailment work had very little effect in reducing the production of this field during April for these reasons. Production figures for May will reflect curtailment work to a substantial degree and will afford operators some tangible evidence of accomplishment, although new prolific completions have offset a large part of the curtailment.

Santa Fe Springs

There were several large wells finished in the deep O'Connell zone at Santa Fe Springs during the week and a number of others are expected to be completed within a few days. Although daily production at Santa Fe Springs showed a substantial increase it has not shown the violent fluctuations which might ordinarily be expected in view of the consistent completions of large flowing wells from day to day. This stability is due principally to crude oil curtailment by major producers. With unrestrained development production at Santa Fe Springs would ordinarily reach a maximum peak within a short time and then decline rather abruptly. Crude oil curtailment and the projected gas conservation work will probably preclude the attainment of any sharp peak and have a tendency to spread production out over a longer period. It is probable Santa Fe Springs will continue a factor in state production for several months, during which the production curve will be relatively flat.

The St. Helens Petroleum started off with an excellent well when No. 1 Hill was recompleted in the O'Connell zone flowing 9,000 bbls. of unusually clean 34.5 gravity oil and 7,500,000 feet of wet gas daily from 6,518 feet. This rejuvenated producer tanked 421 bbls. during the first hour and would have produced the rated 10,104 bbls. during the initial 24 hours following completion had it not been beaned back. No. 1 Hill blew in about two weeks ago flowing 3,000 bbls. per day from only 7 feet of sand. Superintendent Sproule was of the opinion production would be greatly stimulated by opening up an additional thickness of oil bearing formation and preparations were made to carry out this objective within a few days after the well blew in. Some doubted the wisdom of killing a 3,000-bbl. flowing well but subsequent development entirely justified the policy. It was recompleted under perfect control after being swabbed for a short period and its completion reflected considerable credit on the ability of the driller, O. K. (Oscar) Stephens, for his handling, as this well, unlike many others, was not permitted to paint the derrick or create a fire hazard. The natural gas from this well is yielding 3 gallons of natural gasoline for each 1,000 feet of gas treated.

Big Deep Zone Completion

The Texas Company completed an exceptionally large prolific well this week when No. 4 Standlee was recompleted doing 11,000 bbls. of clean 34 gravity oil and 10,000,000 feet of wet gas daily after being redrilled and deepened to 6,857 feet. This project is the largest completion listed since the deep zone exploitation got under way last year, and has been exceeded only by a few Meyer zone wells which were finished in 1923 shortly after Santa Fe Springs was discovered.

The Texas Company also chalked up another excellent completion in the O'Connell zone when No. 4 Foix was brought in flowing 7,640 bbls. of clean 35.6 gravity oil and 8,000,000 feet of saturated gas daily from 6,790 feet. This company, which has experienced considerable success in deep zone development at Santa Fe Springs, has several other projects nearing completion. No. 4 Weaver, a Buckbee zone producer, was killed a few days ago and together with several others, will be carried down to the O'Connell horizon. The Shell Co. successfully finished two new producers on the G. H. & N. lease and increased its daily production 4,870 bbls. The company's two new producers were Nos. 19 and 20, the former tanking 2,180 bbls. daily from 6,508 feet and the latter 2,690 bbls. per day from 6,490 feet, the oil in each being clean and testing 34.3 degrees. The Standard, with 22 strings of tools in this field, brought in No. 17 Walker flowing 1,855 bbls. daily from 6,458 feet. Two other potential producers were also completed by the Standard but were not actually turned loose as the final hookup had not been completed.

Solves Hot Water Problem

The General Petroleum, which is working on 60 drilling projects in this field, focused the attention of operators on the potentiality of the Clarke zone, which immediately underlies the O'Connell horizon, now undergoing intensive development, by finishing No. 228 Santa Fe flowing 1,360 bbls. of unusually clean 33.4 gravity oil daily from 7,674 feet. The company secured an effective water shutoff where others have failed. This is the second well finished in the Clarke horizon, the inability to shut off intermediate water having retarded the completion of a number. Hot water, which in several instances approximated

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil					328,410	2,120,347
Fuel oil					49,950	111,621
Diesel and gas oil			34,291	4,899	834,415	837,077
Gasoline	240,478	34,354	503,592	71,942	7,960,014	4,485,249
Naphtha distillate					81,750	
Coastwise—						
Crude oil	494,106	70,587	311,210	44,459	10,063,311	8,893,637
Fuel oil	291,051	41,579	515,827	73,690	8,770,095	7,530,273
Diesel and gas oil	33,325	4,761	29,525	4,218	645,750	559,923
Gasoline			57,403	8,200	4,081,863	2,085,915
Kerosene	8,661	1,237	2,494	356	29,932	24,415
Naphtha distillate						171,566
Exports—						
Crude oil	6,150	879	28,543	4,078	1,839,021	929,792
Fuel oil	354,300	50,614	414,047	59,150	7,501,162	10,095,531
Diesel and gas oil	79,115	11,302	112,498	16,071	1,009,124	1,150,818
Gasoline	279,090	39,870	350,069	50,010	3,777,530	2,324,935
Kerosene			137,290	19,613	1,154,675	2,048,529

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC, GULF COAST PORTS

Crude oil						
Fuel oil						
Diesel and gas oil						342,425
Gasoline			115,185	16,455	1,950,732	966,932
Kerosene						
Lubricants						208,024
Coastwise—						
Fuel oil					911,689	1,666,169
Diesel and gas oil			50,092	7,156	284,312	119,266
Gasoline	120,206	17,172	199,916	28,559	1,705,025	1,668,008
Kerosene			4,177	597	43,824	90,025
Exports—						
Crude oil					121,603	79,199
Fuel oil					241,671	944,793
Diesel and gas oil					124,838	10,400
Gasoline	31,500	4,500			2,241,899	1,842,504
Kerosene	91,435	13,062			290,863	307,089
Lubricants					17,688	

BOGGY CREEK WELL BLOWING 2,500,000 FEET; SPRAYING 21 BBLS.

By Neil Williams

CORSICANA, Tex., May 27.—The only completion in East Central Texas the past week was on the Boggy Creek Dome on the Anderson-Cherokee County line, where Humble Oil & Refining Co.'s No. 2 Roberts was brought in blowing 2,500,000 feet of gas and spraying 21 bbls. of oil daily. Production is from sand at a total depth of 3,602 feet.

At Boggy Creek, Humble's No. 1 Beard is drilling shale at 1,173 feet. No. 1 Neches River is drilling chalk at 2,856 feet. No. 2-B Elliott and Clark is drilling shale and lime at 2,862 feet. No. 2-A Todd is drilling shale at 1,810 feet. No. 1 Holt, a wildcat 4,000 feet north of production, is drilling sticky shale and lime at 3,391 feet. No. 3 Holloway is spudding.

Humble's No. 3-A Southern Pine, on the old Posey Saline, 8 miles south of Boggy Creek in Anderson County, is ready to spud. Pure Oil Co.'s No. 1 Jackson, Bethel Dome, Anderson County, is drilling shale and lime at 1,836 feet.

In Upshur County, Amerada Petroleum Corp.'s No. 1 Wade, which has been watched closely by operators because of its high checking, showed salt water in a drill stem test with a patented tool at 3,986 feet. Magnolia Petroleum Co.'s No. 1 Duran, Rusk County, a mile north of Pine Hill in the Lollar Survey, is drilling sandy shale at 1,839 feet. W. D. Alexander and associates' No. 1 Anderson is drilling shale at 1,803 feet.

The State of Texas' No. 1 Asylum, Cherokee County wildcat, is drilling sticky shale at 1,537 feet.

In Falls County, Humble Oil & Refining Co.'s No. 1 Pueck is drilling lime and shale at 1,764 feet. Caruth & Stewart's No. 2 Flowers is drilling shale at 734 feet. Killam & Phillips' No. 1 Jones, Hampton Survey, is drilling broken shale and lime at 2,156 feet. Hoosier and associates' No. 1 Naussbaum, Sweet Survey, Freestone County, is drilling broken sand and shale at 3,272 feet.

C. F. Lytle and associates' Trinity sand test at Mexia, Limestone County, is recementing 6⅝-inch casing at 6,061 feet after testing salt water. Donoho & Smith's No. 1 Oliver, same county, is drilling shale at 3,291 feet. Segal and associates' No. 1 Runnels, Limestone County, has spudded.

In McLennan County, O. W. Killam & Phillips' No. 1 Roach, Toby Survey, is drilling broken lime and shale at 1,016 feet. These operators' No. 3 Bryant, Naber Survey, is drilling lime at 690 feet.

Daily average production in East Central Texas for the week ending May 25 was:

East Central Texas

Boggy Creek	2,877
Cedar Creek	135
Currie	430
Mexia	5,554
Minerva	663
Nigger Creek	345
Powell	8,226
Richland	385
Thrall	34
Wortham	1,285
Total	19,934
Total previous week	19,603
Increase	331

200 degrees Fahrenheit, has prevented cement from setting and a number of operators have even resorted to circulating ice water in an effort to reduce formation temperatures without any success. The first producer finished in the Clarke zone was O. J. Rhode's No. 1 Sunshine Acres, which came in last month flowing 3,000 bbls. of clean 35.1 gravity oil daily from 7,407 feet.

The General Petroleum's field staff, while elated over the success, modestly classed the incident as just another day's work. After very careful coring to find the most suitable shale body, ice water was circulated to reduce formation temperature. Straight Santa Cruz cement without any chemical reagent was then forced in well back of the pipe and permitted to set for approximately 10 days. In addition to this Clarke zone completion the General Petroleum also finished No. 189-D in the O'Connell zone at 6,430 feet. This project, a former upper zone producer, was recompleted flowing 2,660 bbls. of exceptionally clean 34.2 gravity oil daily. George F. Getty also listed an O'Connell zone producer when No. 28 Nordstrum, a new well, was brought in under a natural flow doing 3,960 bbls. of 38.2 gravity oil and 6,000,000 feet of wet gas daily from 6,470 feet. The Texas Company supplanted the General Petroleum this week as the largest single producer at Santa Fe Springs, the daily pipe line runs of these two companies approximating 27,000 and 25,000 bbls. respectively. George F. Getty is in third place with 20,000 bbls., followed by the Union with 19,000 bbls., and the Universal Consolidated with 12,000 bbls.

Long Beach

Curtailment activities in the Long Beach Field, under the supervision of Umpire F. C. van Deinse, have resulted in a reduction of approximately 18,000 bbls. per day. Unlike Santa Fe Springs, where numerous large flowing wells are being completed from day to day, daily production at Long Beach has become more or less stabilized with the result that any substantial curtailment is almost immediately reflected in current production. One of the most interesting features is the relatively large number of new wells getting under way. This remarkable field, which was opened by the Shell company late in 1921 and has produced 339,296,458 bbls. of crude oil up to the end of April, is still undergoing progressive development. There are 137 strings of tools in operation with new rigs going up for 18 more. The initial completion of new wells at Long Beach naturally shows considerable variation depending upon the location structurally and proximity to areas which have been consistently drained over the years since discovery.

Several large wells were finished in this field early this month but recent completions have been somewhat smaller than usual, although Otis Hoyt's No. 2 Signal in the northwestern end came in flowing 3,290 bbls. of clean 29.4 gravity oil daily from 7,325 feet. Lyons & Bordo's No. 1 Morgan, a recompletion after being redrilled and deepened to 6,963 feet, showed an initial daily production of only 462 bbls. of 28.9 gravity oil. No. 1 Dodge of the Graham & Loftus Oil Co. was another recent completion which registered small production as the initial output was only 249 bbls. of clean 29.9 gravity oil daily from 5,485 feet.

The Olympic Oil Co. failed to secure a natural flow in No. 15 Signal and was obliged to put it on the beam. This well, spudded in January 21, 1929, pumped 198 bbls. daily from 5,011 feet. No. 1 Ransome of the General Petroleum resulted in a natural flow upon completion at 6,928 feet and although it shows a casing pressure of 900 pounds it is producing only 285 bbls. K. S. Deeds' No. 4 Long Beach blew in prematurely through the drill pipe from 6,325 feet and it is flowing 550 bbls. daily. The Rio Grande Oil Co. successfully finished No. 11-B Municipal making 345 bbls. every 24 hours from 6,143 feet, testing 28.5 degrees and showing a cut of 7 per cent. The Bishop Oil Co.'s No. 3 blew out while rotating at 3,205 feet but sanded up and eliminated a fire hazard which caused some anxiety. The Shell Oil Co. continues to be the largest single producer in the Long Beach Field with a daily production of 38,000 bbls., followed by the Richfield with 25,000 bbls., The Texas Company with 11,500 bbls., Dabney & Johnston with 9,000 bbls. and the Union with 4,000 bbls.

Three former upper zone producers were put on production in the Seal Beach Field of the Los Angeles Basin, two by the Associated Oil Co. These were No. 2 Bryant and No. 2 Hellman, both of which came in under a natural flow, the former tanking 841 bbls. of unusually clean 27.3 gravity oil daily from 4,980 feet and the latter 1,220 bbls. of clean 27.4 gravity oil daily from 5,515 feet. The Marland Oil Co., discoverer of the Seal Beach Field, recompleted No. 1 Selover flowing at the rate of 1,000 bbls. daily and will probably also have No. 11 Bixby tanking oil soon. A large part of recent development work in the Seal Beach Field has consisted of redrilling and deepening jobs, the Marland, Associated and Standard finding it advantageous to deepen former upper zone producers rather than undertake new work. The Marland is deviating a little from this program and is starting three new wells, No. 28 Bixby and Nos. 18 and 21 on the Selover property. This field has been unusually free from competitive drilling due to the co-operation between the three companies which control the entire productive acreage in the older section.

The Rawco Oil Co. chalked up a new completion in the Richfield district when No. 2 Biltmore was finished doing 161 bbls. of relatively clean 20.6 gravity oil daily from 4,523 feet, the hole having been finished with a 5¾-inch liner carrying 470 feet of perforated. The Superior Oil Co. recompleted No. 1 fee in the same area after plugging back from 4,910 feet to 4,800 feet and, while the company failed to secure a natural flow, is making 250 bbls. daily on a compressor. The Superior has two other wells under way in this area and is building rig for another, No. 1 Guarantee. The Continental Oil Co. is also increasing its development work, No. 2 Krause, No. 1 Mondotte, No. 7-A Pyne and No. 3 R. C., all having recently been spudded in. The Union increased its list of producers in the Brea Olinda Field by finishing No. 14 Narranjal pumping 120 bbls. daily from the deep sand at 5,350 feet, the hole having been completed with an 8¼-inch oil string carrying 1,840 feet of perforated.

Lawndale

There was no change in development work in the Lawndale Field although the northwestern section continues to look better. The Union Oil Co. has been coring alternate layers of shale and oil sand for the past 200 feet in No. 1 Johnson, located beyond production in the northwestern end. This well has shown favorable indications from time to time, but is still rather dubious at 5,930 feet due to the absence of a continuous unbroken oil sand. No gray sand has been logged, and the company may possibly develop production from the numerous stringers. Five wells are producing in this field, the largest, the San Clements Oil Co.'s No. 2 Peck, flowing 865 bbls. of 31.8 gravity oil daily. The Smith Development Co. has two producers on the Peck lease, No. 1 flowing 550 bbls. daily and No. 4 making 20 bbls. No. 8 on this lease has just secured a water shutoff at 5,718 feet and will probably be on production shortly. The Pacific Western Oil Co., with a daily production of 382 bbls. from No. 2 Howland and the Petroleum Securities with a 100-bbl. pumper in No. 2 Brown, complete the list. The Sovereign Oil Co., which picked up some rather favorable indications in the town lot area several weeks ago, is concluding a water test.

Ventura Avenue

Contrary to prevailing opinion, existing because of conservation work, the Ventura Avenue Field has not shown any evidence of depletion or unfavorable development, and will continue to be an important factor in State production for a number of years due to the constructive development work of major companies. The Associated's No. 73 Lloyd, which came in last week flowing 3,460 bbls. per day from 7,425 feet, should dispel any concern as it has been subsequently built up to 4,125 bbls. without any change in the flow nipple. The Associated followed up this success by completing No. 72 Lloyd flowing 1,450 bbls. per day from the upper part of the deep zone at 6,503 feet and a check of development work indicates the probability of additional completions. The Shell also chalked up a new producer in the Ventura Avenue Field when No. 32 Taylor was brought in under a natural flow doing 2,390 bbls. daily from 7,137 feet, the oil being clean and testing 29.2 degrees. The Shell is also expected to augment

(Continued on Page 132)

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well, location—	S-T-R	Depth	Status
Standard, No. 5-9 Saticoy, Ventura Co.	10- 2-22	6,330	br. sh. drilling
American Oil Co., No. 1 Camarillo, Ventura Co.	33- 2-20	1,140	hd. sd. drilling
Bolsa Chica, No. 1 Temescal, Ventura Co.	4- 4-13	769	abandoned
The Texas Company, No. 1 Wiley Canyon, Ventura Co.	2- 3-19	510	suspended
Superior Oil Co., No. 1 Santa Paula, Ventura Co.	14- 4-21	522	hd. sd. drilling
Craise, F. A., No. 1 South Mountain, Ventura Co.	17- 3-21	rig	suspended
Miley, E. J., No. 2 Red Mountain, Ventura Co.	7- 3-23	1,398	hd. sd. drilling
Miley, E. J., No. 3 Red Mountain, Ventura Co.	11- 3-24	rig	rigging up
Shell, No. 1 Simi, Ventura Co.	31- 3-17	2,914	redrilling
Continental, No. 1 Sulphur Mountain, Ventura Co.	21- 4-22	3,765	suspended
Continental, No. 2 Sulphur Mountain, Ventura Co.	22- 4-22	6,740	suspended
Lockwood Oil Co., Well No. 1, Ventura Co.	28- 3-21	rig	suspended
Milham Expltn., No. 1-A Buttonwillow, Kern Co.	8-28-23	4,662	gas well—idle
Milham Expltn., No. 2 Buttonwillow, Kern Co.	8-28-23	2,730	gas well—idle
Milham Expltn., No. 3 Buttonwillow, Kern Co.	8-28-23	2,694	gas well—idle
Milham Expltn., No. 4 Buttonwillow ,Kern Co.	6-28-23	2,670	gas well—idle
Milham Expltn., No. 5 Buttonwillow, Kern Co.	5-28-23	2,500	gas well—idle
Milham Expltn., No. 6 Buttonwillow, Kern Co.	8-28-23	2,676	gas well—idle
Milham Explin, No. 7 Buttonwillow, Kern Co.	6-28-23	2,720	suspended
Milham Explin., No. 8-A Buttonwillow, Kern Co.	8-28-23	2,673	gas well—idle
Lincoln Drlg. Co., No. 1 Buttonwillow, Kern Co.	6-28-23	190	suspended
Richfield Oil Co., No. 2 Semitropic, Kern Co.	36-27-23	6,214	br. sh. drilling
Stabler, W. W., No. 1 Comanche Point, Kern Co.	23-32-29	3,409	suspended
Symark Oil Co., No. 1 Edison, Kern Co.	24-29-29	1,230	suspended
Elmer Oil Co., No. 1 Shafter, Kern Co.	8-28-25	6,100	suspended
Elmer Oil Co., No. 1 Bena, Kern Co.	15-30-30	2,060	sd. sh. drilling
Elmer Oil Co., No. 1 Rosedale, Kern Co.	33-29-26	2,600	redrilling
Taft Drlg. Co., No. 1 Union Ave., Kern Co.	2-30-27	....	location
Shell Oil Co., No. 1 Lerdo, Kern Co.	5-29-27	3,760	hd. sd. drilling
General Pet., No. 1 McFarland, Kern Co.	25-26-25	4,245	hd. sd. drilling
Union, No. 2 San Emidio, Kern Co.	5-10-21	3,188	br. sh. drilling
Currency Pet. Co., No. 1 Jacalitos, Fresno Co.	28-21-14	2,111	hd. sd. drilling
Currency Pet. Co., No. 2 Jacalitos, Fresno Co.	14-21-14	360	suspended
Hornaday & Huggins, No. 1 Kerman, Fresno Co.	32-14-18	3,870	suspended
K.C.L. Oil Co., No. 1 Joaquin Ridge, Fresno Co.	7-19-15	114	suspended
Thomas Pet. Co., No. 1 Krayenhagan, Fresno Co.	33-22-17	568	cleaning out
Petroleum Securities, No. 1 Kerman, Fresno Co.	20-20-16	mtl.	building rig
Petroleum Securities, No. 2 Kerman, Fresno Co.	28-20-16	mtl.	building rig
Union, No. 1 Huasna, San Luis Obispo Co.	34-32-15	3,630	br. sh. drilling
Union, No. 1 North Huasna, San Luis Obispo Co.	13-32-14	3,540	hd. sd. drilling
Midwest Refining Co., No. 1 Huasna, San Luis Obispo Co.	34-31-15	rig	rigging up
Panorama Oil Co., Well No. 1, San Luis Obispo Co.	7-31-21	3,854	gr. sd. drilling
Garliepp, Fred, No. 1 Betteravia, Ventura Co.	30-10-35	mtl.	building rig
Shell, No. 3 Guadalupe, Santa Barbara Co.	25-10-35	rig	structure survey
Shell, No. 2 Goleta, Santa Barbara Co.	36- 5-31	3,412	test showing
Petroleum Securities, No. 1 Goleta, Santa Barbara Co.	.....	1,263	sd. drilling
Union, No. 1 Buel Canyon, Santa Barbara Co.	X- 7-31	580	sd. sh. drilling
Western Gulf, Point Conception, Santa Barbara Co.	X- 5-33	1,948	sd. sh. drilling
Standard, No. 1 Point Conception, Santa Barbara Co.	X- 5-34	2,550	hd. sd. drilling
Standard, No. 1 Tortuga Canyon, Santa Barbara Co.	.....	2,540	hd. sd. drilling
Olympic Oil & Refg. Co., No. 1 Mesa, Santa Barbara Co.	29- 4-27	2,438	1,500 bbls. daily
Nugent, J. F., No. 1 Palisades, Santa Barbara Co.	.....	295	sd. drilling
Nevada Standard, No. 1 Goleta, Santa Barbara Co.	10- 4-28	3,915	sd. sh. drilling
General Pet., No. 1 Elwood, Santa Barbara Co.	21- 4-28	3,206	br. sh. drilling
Pacific Western, No. 1 Naples, Santa Barbara Co.	7- 4-29	rig	rigging up
Padre Oil Co., No. 1 Dos Pueblos, Santa Barbara Co.	18- 4-27	3,016	br. sh. drilling
System Oil Co., No. 1 Orcutt, Santa Barbara Co.	36-10-34	1,788	cleaning out
Keystone Oil Co., No. 1 Santa Maria, Santa Barbara Co.	33-10-34	rig	rigging up
American Oil Co., No. 1 Summerland, Santa Barbara Co.	33- 4-25	809	suspended
Getty, George F., No. 1 Summerland, Santa Barbara Co.	22- 4-26	4,678	sd. sh. drilling
Lincoln Drlg. Co., No. 1 Summerland Santa Barbara Co.	22- 4-26	mtl.	building rig
Keystone Oil Co., No. 1 Surf, Santa Barbara Co.	18- 7-35	mtl.	building rig
Shell, No. 1 Summerland, Santa Barbara Co.	18- 4-25	mtl.	building rig
Channel Oil Co., Well No. 1, Santa Barbara Co.	29- 4-27	6,304	suspended
Channel Oil Co., No. 1 Fellowship, Santa Barbara Co.	29- 4-27	1,080	suspended
Continental, No. 1 Carpenteria, Santa Barbara Co.	33- 4-25	4,130	suspended
Continental, No. 2 Carpenteria, Santa Barbara Co.	33- 4-25	2,001	sd. sh. drilling
Elwood Consd., No. 1 Goleta, Santa Barbara Co.	8- 4-29	3,430	to abandon
Colusa Oil Co., Well No. 1, Colusa Co.	31-15-4	613	hd. sd. drilling
Italo American, Well No. 1, Colusa Co.	20-13-3	735	hd. sd. drilling
North Counties Oil Co., Well No. 2, Humboldt Co.	36- 2-1	2,205	suspended
Humboldt Oil Co., Well No. 1, Humboldt Co.	6- 2-1	3,041	redrilling
Applegate & Renshaw, Well No. 1, Merced Co.	24- 6-10	3,721	hd. sd. drilling
Kuhns, H. L., Well No. 1 Merced Co.	8-12-19	426	gr. sd. drilling
Calhoma Oil Co., No. 1 Livermore, Alameda Co.	9- 3-3	1,544	suspended
Shell, No. 1 Dudley, Monterey Co.	15-22-9	2,840	hd. sd. drilling
Union, No. 1 San Lucas, Monterey Co.	8-22-8	102	sd. drilling
Marland, No. 1 Bradley, Monterey Co.	32-24-11	5,450	hd. sd. drilling
Tux Oil Co., No. 1 Los Gatos, Santa Clara Co.	16- 8-1	852	suspended
Dudley Ridge Synd., No. 1 Tulare, Kings Co.	12-23-19	1,305	gas well
Associates Pet., No. 1 Lewis Creek, San Benito Co.	5-19-10	492	hd. sd. drilling

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Ring Pet. Co., No. 1 Inglewood, Los Angeles Co.	28- 2-14	5,487	suspended
Ohio Oil Co., No. 1 Playa Del Rey, Los Angeles Co.	23- 2-15	6,012	hd. sd. drilling
The Texas Co., No. 1 Long Beach, Los Angeles Co.	8- 4-12	mtl.	building rig
Petroleum Securities, No. 1 Hermosa, Los Angeles Co.	32- 3-14	5,211	br. sh. drilling
Standard, No. 1 Hawthorne, Los Angeles Co.	5- 3-14	4,625	fishing
Circle Oil Co., No. 1 Gardena, Los Angeles Co.	23- 3-14	4,280	suspended
Allied Pet., No. 1 Redondo, Los Angeles Co.	28- 3-14	4,806	sd. sh. drilling
Shell, No. 1 Redondo, Los Angeles Co.	20- 3-14	218	sd. drilling
Jackson, R. W., No. 1 Whittier, Los Angeles Co.	19- 2-11	1,477	plug back
Burlingham Pet. Co., No. 1 Compton, Los Angeles Co.	17- 3-13	2,120	sd. sh. drilling
Hansen, N. J., No. 1 Watson, Los Angeles Co.	17- 4-13	....	grading
Easton & Smith, No. 1 Calabasas, Los Angeles Co.	19- 1-17	2,982	suspended
Pugh Miller Drlg. Co., No. 1 Calabasas, Los Angeles Co.	6- 1-17	2,395	br. sh. drilling
Russell Oil Co., No. 2 Joughin, Los Angeles Co.	25- 3-17	1,704	recemented
Pomona Oil Co., Well No. 1, Los Angeles Co.	32- 1-8	1,106	hd. sd. drilling
Beard, G. F., No. 1 Brea Canyon, Los Angeles Co.	30- 2-9	101	sd. drilling
Anchor Oil Co., No. 1 Puente, Los Angeles Co.	19- 2-10	4,820	suspended
Rucker, R. C., No. 1 Puente, Los Angeles Co.	27- 2-10	914	sd. sh. drilling
Urmi Oil Co., No. 1 Puente, Los Angeles Co.	31- 3-8	mtl.	building rig
Shell, No. 1 Coyote, Los Angeles Co.	28- 3-10	1,561	sd. sh. drilling
Prairie Oil Co., No. 1 Montebello, Los Angeles Co.	32- 1-12	rig	rigging up
Union Oil Co., No. 1 Richfield, Los Angeles Co.	13- 3-9	rig	suspended
Southwestern Drlg. Co., No. 1 Richfield, Los Angeles Co.	21- 3-9	3,597	br. sh. drilling
Anderson, P. B., No. 1 Hasley Canyon, Los Angeles Co.	1- 3-16	241	sd. sh. drilling
Pico Dome, No. 1 Hasley Canyon, Los Angeles Co.	14-3-16	345	suspended
Calif. Eastern, No. 1 Wickham, Los Angeles Co.	32- 5-17	3,517	suspended
Coastline Oil Co., No. 1 Devil Canyon, Los Angeles Co.	21- 5-17	514	suspended
Mesa Pet., No. 1 Newport, Orange Co.	21- 6-10	4,300	gr. sd. drilling
Hall Pet. Co., No. 1 Murietta, Riverside Co.	23- 7-3	975	suspended
Hemet Pet. Co., No. 1 Ward, Riverside Co.	9- 5-1	3,232	suspended
Imperial Valley Oil Co., Well No. 1, Imperial Co.	32-11-10	2,980	suspended
Davenport Oil & Gas Co., No. 1 San Marcos, San Diego Co.	30-12-8	847	suspended
Turner, S. S., No. 1 Escondido, San Diego Co.	25-12-2	1,890	bl. sh. drilling

Gas Show in Louisiana's Deepest Hole

Dixie Company's Well in Caddo Parish Tested 192,000 Feet at 1,000 Pounds, Total Depth 6,124 Feet; To Be Deepened

By D. H. Bancroft
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., May 27.—Dixie Oil Co.'s No. 92 Dillon, Section 13-21-15, Pine Island district of Caddo Parish, tested 192,000 feet of gas at 1,000 pounds, total depth 6,124 feet, and is shut down waiting for a new bit to make a few more feet of hole. This showing, while disappointing, was an improvement over the showing a week ago from the top of the shell and lime formation from which the gas is coming, and still further improvement is anticipated on deepening this, already the deepest hole in Louisiana.

Magnolia Petroleum Co.'s second test in the "condemned" area it made productive with an 85-bbl. producer from a new deeper lens at 3,012 feet last November, did not repeat the success with No. 18 Doan-Thigpen in Section 6-20-15, north of the "discovery." The Doan-Thigpen well tested salt water at 3,007 feet and was coring sandy shale at 3,021 feet. No. 1 Adkins in Section 4-22-9, Shongaloo district of Webster Parish, tested 10 joints of oil and 8 of salt water and set 6⅝-inch at 2,650 feet, total depth 2,665 feet. The well is an offset to two previous small pumpers. No. 1 Ira Cox, Section 23-21-10, Cotton Valley, tested 240,000 feet of gas at 4,690 feet and will deepen a few feet; No. 1 McCook & Hibbler, Section 22-21-10, the deepest hole in Cotton Valley, had a little gas on drill stem test at 5,450 feet and was coring lime at 5,555 feet.

R. W. Norton has drilled to contract depth, 4,000 feet, on No. 1 Fortson in Section 32-21-15, Caddo Parish, on which he had support from Humble Oil & Refining Co., and the well will probably be abandoned although Norton would like to make a few more feet of hole.

Mount Holly District

Only two wells are drilling in the Mount Holly district of Ouachita County, Arkansas, which has three producing wells and three or four more carried on the report as drilling and rigs. Arkansas Drilling Co.'s No. 1 Crowley, Section 27-15-19, is drilling at 2,420 feet and Timberlake and others' No. 1 Wright in Section 25-14-18 is drilling at 2,550 feet. One or two locations have never been drilled and of the other wells started one is shut down and all the rest have been drilled to anticipated pay depth and below and been abandoned. C. H. McDonald's No. 1 Wilson in Section 25-15-18, the discovery well, is still pumping its 100 bbls. and McDonald Brothers' No. 1-B Wilson is pumping 40 bbls. Root Refineries' No. 1 Wilson is pumping the original 40 bbls., 8 per cent water.

Gulf Refining Co. tested salt water at 3,710-43 feet in No. 1 Cook, Section 1-18-15, El Dorado east field, and temporarily abandoned the hole at 3,765 feet. In the Champagnolle district Ohio Oil Co. got a 500-bbl. producer in No. 1 Lynn, Section 7-17-13, which extended production about a quarter mile south, the location being midway between the extreme east and west producers in this section. No. 2 L. S. Adams in the same section but ¼ half mile or so north, tested 3,000,000 feet of gas with a show of oil in sand from 2,994-3,007 feet and was coring at 3,020 feet. No. 1 E. Raulston in Section 12-17-14 showed for a good producer around 3,000 feet.

Small Gas Wells

Most of the completions in proven territory were small gas wells scattered throughout the division with the Monroe Field naturally having the most. Arkansas Natural Gas Corp.'s No. 12-B Urania in Section 17-10-2e, LaSalle Parish, was a dry hole at 1,537 feet but H. L. Hunt's No. 5 Urania in Section 2-9-1e started pumping 150 bbls. from 1,510 feet. Four gassers were completed in the Monroe district, two in Ouachita Parish and two in Morehouse. Of the latter Natural Gas Producing Co.'s No. 24 Crossett, Section 25-21-4, gauged 2,761,000 feet, total depth 2,237 feet and No. 14 Tensas, Section 4-22-4, made 1,000,000 feet, total depth 2,240 feet. In Ouachita Parish Interstate Natural Gas Co.'s No. 3 Hunter & McCormick, Section 41-19-3, gauged 6,847,000 feet at 900 pounds, total depth 2,211 feet, and No. 4 in Section 1-19-3 gauged 7,704,000 feet at 890 pounds, total depth 2,165 feet.

Arkansas Natural Gas Corp. completed another producer in the Clarksville gas district of Johnson County with No. 1 McPherson, Section 10-10-24, gauging 9,759,750 feet at 390 pounds, total depth 3,455 feet, the deepest of the five or six producing sands in this northwest Arkansas field.

Cumberland Oil Co. abandoned No. 1 Burton in Section 24-15-18, a half mile or so northeast of the discovery well in the Mount Holly district, at 2,943 feet after deepening from 2,884 feet, where it tested salt water with a show of oil. Arkansas Naural Gas Corp. completed No. 1 Bilyew, Section 9-16-15, pumping 30 bbls. from 2,378 feet after plugging back to 2,297 feet and perforating casing. Shell Petroleum Co. abandoned No. 1 Bilyew, Section 9-16-15, an offset, as a junked hole at 2,419 feet. It was originally a 6,000-bbl. initial producer at this depth and had been rigged up to deepen. There was one completion in the East Texas gas district, Natural Gas Producing Co. No. 5 Floyd in the B. C. Jordan Survey of Panola County, 4,000,000 feet of gas, total depth 956 feet.

Daily Average Production

Daily average runs from the field showed an increase of 370 bbls. from the division as a whole. Louisiana runs were about steady, the difference being 35 bbls. on the credit side, Arkansas' increase amounting to 335 bbls. Small increases in most of the other Louisiana districts were all but cancelled by a decline of 120 bbls. in Urania runs with Pleasant Hill and the Sarepta-Cartersville district showing no change. In Arkansas El Dorado runs increased 70 bbls. and Smackover heavy 165 bbls. Stephens, Lisbon and Bradley districts were unchanged and Champagnolle runs increased 135 bbls. Daily average runs from the several pools were:

Louisiana	
Caddo, light	8,285
Caddo, heavy	3,280
Homer	4,220
Haynesville	5,330
DeSoto-Red River	3,800
Elm Grove	610
Bellevue	610
Cotton Valley	2,700
Urania	5,840
Pleasant Hill	480
Sarepta-Cartersville	250
Total	35,405
Arkansas	
El Dorado	4,760
Smackover, light	6,110
Smackover, heavy	48,775
Stephens	1,020
Nevada County	1,060
Lisbon	1,350
Champagnolle	8,350
Bradley	100
Total	71,525
Both states	106,930
Last week	106,560
Increase	370

NORTHERN LOUISIANA

Bossier Parish

Elm Grove—Woodley Petroleum Co. tested 2,500,000 feet of gas at 2,422 feet on No. 4 Whitehurst, Section 35-16-12, and is plugging back to set 4½-inch, total depth 2,386 feet.

Caddo Parish

Dixie—Gulf Refining Co.'s No. 1 Oden, Section 18-19-14, topped gas rock at 830 feet, set 10-inch at 165 feet and is in shale at 1,110 feet; No. 2 Oden set 10-inch at 151 feet, topped the gas rock at 825 and is drilling gumbo at 1,320 feet. Ohio Oil Co.'s No. 1 Hunter, Section 17-19-14, set 102 feet of 10-inch casing. Standard Oil Co.'s No. 2 Hunter, Section 17-19-14, is drilling sand rock at 2,014 feet; No. 4 Hunter set 10-inch at 143 feet and is in the gas rock at 825 feet. No. 1 Oden, Section 18-19-14, set 100 feet of 10-inch and is drilling at 1,375 feet.

Oil City—Gulf Refining Co.'s No. 16-A Levee Board, Section 34-22-16, is drilling gumbo at 878 feet. Magnolia Petroleum Co. got salt water on a drill stem test on No. 18 Doan-Thigpen, Section 6-20-15, at 3,009 feet and is coring sandy shale at 3,021 feet.

Pine Island—Dixie Oil Co.'s No. 92 Dillon, Section 13-21-15, tested 142,000 feet of gas at 1,000 pounds, and is shut down waiting on rock bit, total depth 6,124 feet; No. 98 is a new location, 2,850 feet south and 1,018 feet east NW cor. of same section; No. 3-B Slattery, Section 21-21-15, is arranging to shoot formation at 1,607 feet and make a shallow well.

LaSalle Parish

Urania—H. L. Hunt made location, 890 feet south and 200 west of the center of Section 2-10-1e for No. 6-A Urania.

Red River Parish

Bull Bayou—J. H. Askew set 100 feet of 10-inch and is drilling at 1,620 feet on No. 1 Lockett, 3,850 feet south and 600 east NW cor. Section 32-13-10. Gulf Refining Co.'s No. 1 Kennedy, Section 24-13-11, set 200 feet of 10-inch and is drilling at 845; No. 38 Robinson, Section 25-13-11, is cleaning out heaving blue shale total depth 2,544 feet.

Monroe District

Morehouse Parish—Interstate Natural Gas Co.'s No. 2 Finley is a new location 555 feet north and 550 east of the center of the SW of Section 15-20-4. Southern Carbon Co. cemented 6-inch at 2,214 feet on No. 2 Griffing, Section 10-20-4, and is drilling gumbo at 1,460 feet on No. 10 Tensas, Section 2-20-4.

Ouachita Parish—Interstate Natural Gas Co. cemented 6-inch at 2,155 feet on No. 2 Hujter & McCormick, Section 40-20-3. G. E. Jordan's No. 1 Anding, Section 18-18-5, cemented 6-inch at 2,220 feet. LaDel Oil Properties is arranging to test No. 47 fee, Section 6-19-5. Magnolia Petroleum Co.'s No. 1 fee, Section 2-18-3, is a derrick; No. 2 U. S., Section 30-19-5, is drilling at 1,966 feet and No. 3 U. S. in Section 18-19-5 at 2,112 feet. Nemours Corp. is drilling shale and boulders at 1,700 feet on No. 3 Frierson, Section 18-19-4. Ouachita Natural Gas Corp.'s No. 2 Sandidge, Section 11-20-4, is in shale and boulders at 1,923 feet. Peerless Carbon Co. is drilling gumbo at 1,850 feet on No. 5 Moore, Section 51-20-4. Pioneer Oil & Gas Co.'s No. 1 Fudicker, Section 18-18-5, has 6-inch cemented at 2,240 feet. United Oil & Natural Gas Co. set 8-inch at 809 feet on No. 4 Guthrie, Section 49-20-4. West Virginia Oil & Gas Co. set 156 feet of 12-inch and is drilling No. 7 West Virginia, Section 5-18-4, at 200 feet.

Union Parish—Imperial Oil & Gas Products Co.'s No. 1 Pullen, Section 20-20-4, cemented 6-inch at 2,072 feet. Interstate Natural Gas Co. has derrick up for No. 1 Parks, 1,980 feet north and 1,968 feet west SE cor. SW Section 23-

(Continued on Page 130)

OIL IN MISSISSIPPI WILDCAT AND MONROE GAS FIELD STIR INTEREST

By D. H. Bancroft

SHREVEPORT, La., May 27.—Oil showings in a Mississippi wildcat and in a Monroe gas field well will be followed by a general exodus of scouts and land men to the locations to watch forthcoming tests.

The Monroe showing was decidedly more pronounced than the one in Mississippi and is as important in its way as the Mississippi show is to that state. It developed unexpectedly in Industrial Gas Co.'s No. 2 Halemin, Section 14-21-3, on the Spencer Dome. This dome is the highest point in the Monroe Field and, while surrounded by producing wells is just now being drilled. The showing, from somewhere in 108 feet of sand (the well logged sand, probably the Wilcox or Cane River, the Urania Zone, from 1,413-1,521 feet), developed while the crew was making hole with the usual speed and covered the pit and ditch. As soon as this well is finished as a gasser another will be started and this sand carefully tested from top to bottom. The prospect of developing production in the gas field which is producing fuel from 2,000-2,200 odd feet, appear better than in any other well drilling in this division outside of the already proven areas.

The showing in the Mississippi well came from a coarse hard sand from 2,478-82 feet in the Eutaw formation which corresponds to the Blossom in Louisiana and Arkansas and was topped at 2,400 feet. It was by no means as pronounced as the Monroe show, being present only as a core barrel showing, but it is so much better than Mississippi has shown hitherto during the current campaign of exploration that the drill stem test to follow in a week or ten days will draw a gallery from all over the division. Delay in the test is due to having to get to the bottom of 500 feet of rat hole. The well is Philps Brothers' No. 1 James in Section 20-11-5, Yalobusha County.

Sand Test Due Soon

A second test in Mississippi is due shortly, barring unforeseen delays, this being in the Amory Natural Gas Co.'s No. 1 Carter, Section 7-13-17, Monroe County, which is coring at 2,320 feet. The discovery gas well 600 feet north was completed at 2,412 feet. Arkansas Natural Gas Corp. is fishing for 24 joints of 5⅜-inch casing in No. 1 Rye, Section 22-15-17, Monroe County, total depth 3,300 feet. Lion Oil Refining Co.'s No. 1 Misterfelt, Section 2-4-1e, Rankin County, is drilling at 3,881 feet in the red beds.

Richland Parish contributed to successful wildcat activities when Northern Louisiana Natural Gas Co.'s No. 1 J. H. Hemler in Section 11-16-6, was finished as a 52,000,000-foot producer at a total depth of 2,444 feet. A little over a half-mile south, and 1½ miles north and

(Continued on Page 130)

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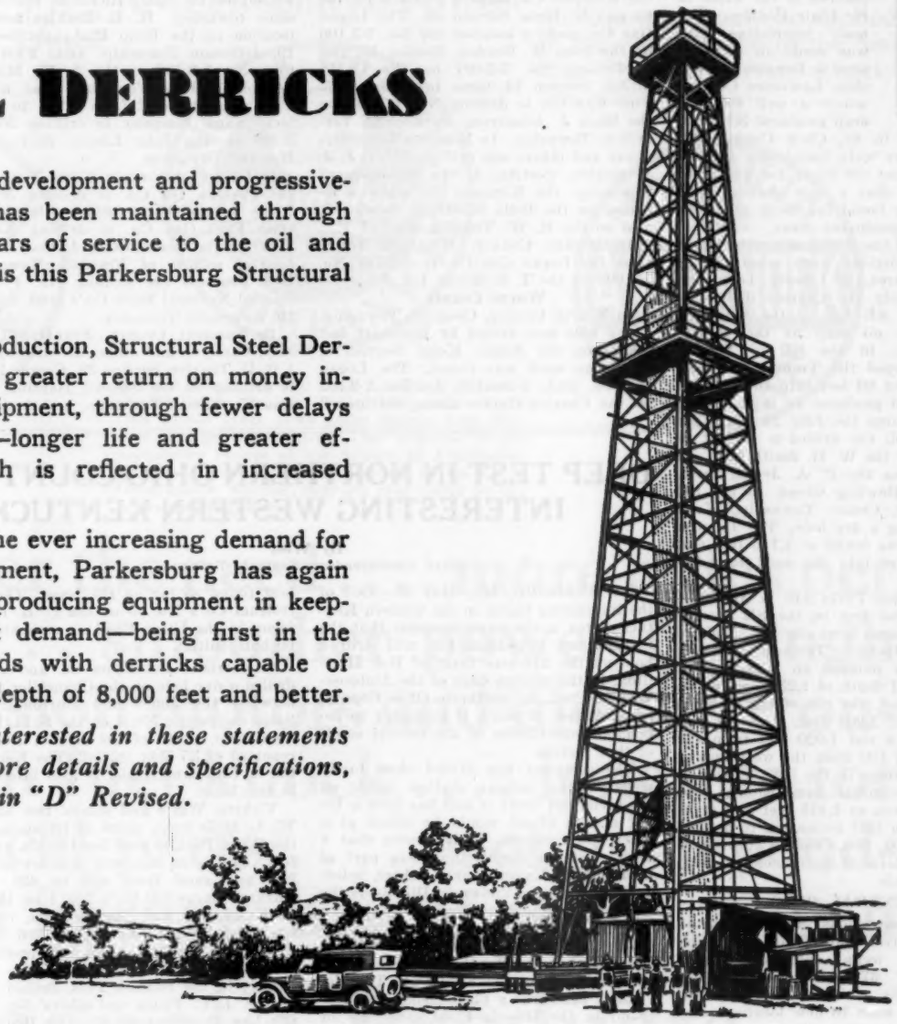

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Illinois Gets Three Remarkable Wells

New Stray Sand in Lawrence County Develops 300-Bbl. Producer. Two Good Completions in St. Clair County

By Whit
Staff Correspondent, Central West Fields

FINDLAY, Ohio, May 27.—The Illinois fields are showing some remarkable wells in both the old Lawrence County area and the new development in the western portion of the State in St. Clair County. The most interesting find was made in a stray sand in Dennison Township, Lawrence County, where a well 493 feet deep produced 300 bbls. initial, while in St. Clair County two large producers were found, one for 250 bbls. initial and the other for 240 bbls., which means that a new shallow sand area has been found far away from the older Illinois producing areas.

In the old Lima Field of northwestern Ohio, 4 completions were reported. In the Findlay area, in Liberty Township, Hancock County, L. Cramer drilled in No. 2 in the SE cor. of the Sol Frey farm, on the oil map as the Robert Cordner farm, in the SE of Section 31, which topped the Trenton at 1,325 feet and drilled 60 feet into the sand to 1,385 feet, and produced an initial of 20 bbls. under pump the first 24 hours.

The Just Oil Co. drilled a wildcat in the SE cor. of the W. H. Smith farm, on the oil map as the P. A. Jewell farm, southeast of Bowling Green, in the SE of Section 32, Center Township, Wood County, getting a dry hole. The Trenton in this well was found at 1,116 feet and drilled 303 feet into the sand to 1,419 feet.

The Columbus-Tiffin Oil & Gas Co. drilled a second test in the SE cor. of the H. A. Ropp farm, in the NW of Section 18, Jackson Township, Seneca County, which pumped an initial of 12 bbls. at a total depth of 1,237 feet, or 34 feet in the sand, the top of the Trenton being found at 1,203 feet. Duncan and others drilled a test 1,020 feet from the south line and 100 from the west line of the Rufus Chaney, in the SW of Section 26, Liberty Township, same county, topping the Trenton at 1,415 feet and drilling 185 feet in that formation to a total depth of 1,600 feet, and it proved a duster. This farm is on the old oil map as the P. Dennis.

CENTRAL OHIO

Twenty completions were reported from the Central Ohio fields, of which 7 were oil wells with an initial production of 67 bbls., 7 dry holes and 6 gas wells, while in the new work starting there were 10 new locations and 29 new wells started to rig up and spudding, a total of 39 in the new work which is being maintained at an active rate weekly. The oil wells brought in were light and the same can be said of the majority of the gas wells, as but very few above the average were found.

In Ashland County, the Ohio Fuel Gas Co.'s No. 1-3,430 on the C. M. Palmer farm, Section 6, Hanover Township, proved to be a dry hole. In Lake Township, Robinson and others' No. 4 Emma Devinney, Section 9, produced an initial of 24 bbls., while the same firm's No. 2 on the John Cable 40 acres, same section, is a light gas producer along with 7 bbls. of oil. Bock, Courtney and others found a very light gas well on the O. Chesrown, Section 4, and the Kemrow Co. drilled a dry hole on the E. E. Heffelfinger, Section 17. In the same township, Harmon, Watts & Geiger are drilling No. 3 David Horn, Section 4. Ohio Fuel Gas Co. is drilling on the Ellis A. Morris, Sections 3 and 4, and is also drilling No. 1-3,592 on the D. G. Chandler, Section 4. In Perry Township, Maranville and others' No. 3 on the Elmer Myers and others' farm, Section 30, was a dry hole in the Berea sand at 700 feet. Cumberland Petroleum Co. is drilling a second test on the Peter B. Denny 158 acres, Section 19, Lake Township. In Orange Township, the Kemrow Co. made a location on the G. and N. Hess, Section 35. The Logan Gas Co. made a location for No. 1-3,106 on the John W. Gordon, Section 12, and is drilling No. 2-3,097 on the C. P. Miller, Section 14, same township. Ohio Fuel Gas Co. is drilling No. 1-3,488 on the Mary J. Armstrong, Section 22, Vermillion Township. In Mohican Township, Jones and others are drilling No. 6 J. J. Winbigler, Section 4. In Montgomery Township, the Kemrow Co. made a location on the Belle Weetman, Section 5, also on the R. W. Topping, Section 1.

In Medina County, Westfield Township, the Logan Gas Co. is drilling No. 1-3,093 on the T. S. Reese, Lot 60.

Wayne County

In Wayne County, Congress Township, a dry hole was drilled by Barnhart and others on the Jennie Keim, Section 5, where no sand was found. The Logan Gas Co. made a location for No. 1-3,102 on the Charles Garver farm, Sections 6 and 15, Richland Township, Holmes County.

In Knox County, Brown Township, the Ohio Fuel Gas Co. struck a nice gasser in No. 4-3,490 on the A. J. DeLong farm, Section 7. Same company is drilling No. 4-3,561 on the Sally Richards, Section 1, same township. H. E. Perkins made a location on the Reno Blubaugh, Section 19, Jefferson Township. Ohio Fuel Gas Co.'s No. 1-3,492 on the A. W. Minard, Section 1, Pike Township, was a dry hole at a depth of from 2,778 to 2,780 feet. Same company is drilling No. 1-3,496 on the John Lower, Section 10, Howard Township.

In Coshocton County, Clark Township, the Preston Oil Co. is drilling No. 2-1,309 on the Victor Shiebe, Section 6. Ohio Fuel Gas Co. is drilling No. 1-3,460 on the Cornelius B. A. Cory, third-quarter section of Franklin Township. Bell Brothers are drilling No. 4 Commercial National Bank Co.'s land, Section 19, Newcastle Township.

In Summitt County, Franklin Township, Cameron and others are drilling No. 1 B. D. Traxler, Section 36. George Egam is drilling on the Samuel Harring, Section 17, Greene Township, and Arthur & Reeves made a location on the Alice Wise, Section 25.

In Licking County, Perry Township, the Preston Oil Co.'s No. 3 Ollie Lear farm, Section 5, is good for 9 bbls. at from 774 to 784 feet. Whitehill Oil Co. is drilling No. 11 A. A. Ashcraft, Section 9, same township. Hope Construction & Refining Co. is drilling No. 3 Charles Obannon, Section 16, Hanover Township, and the Wehrle Gas Co. is drilling on the Solomon Weaver, same Township. In Hopewell Township, the Wehrle Gas Co. has an average gas well on the James Iches, Section 4, finding the gas at from 2,551 to 2,581 feet. Preston Oil Co. is drilling on the S. E. Walpole, Section 23, Madison Township.

In Muskingum County, Muskingum Township, the Preston Oil Co. has a dry hole in No. 1-1,295 on the P. D. Adams, Section 13. In Falls Township, the Athey Drilling Co. has a fair gas well on the Henry Hockmeister Section 5, at from 3,654 to 3,709 feet. George Jewell and others are drilling on the Albert Adams, in the fourth-quarter of Washington Township. The Pure Oil Co. is drilling on the Charles B. Anderson, Section 4, Jackson Township. Ohio Fuel Gas Co. is drilling No. 1-3,537 on the P. E. Arnold, third-quarter of Perry Township, and Palmer & Geisinger are drilling on the H. E. Hanes, in the same quarter section.

In Athens County, Trimble Township, the Palos Oil & Gas Co. has an average gas well in a second test on the G. W. McDonald, Section 4. Top of sand in this well was topped at 2,745 feet, finding the gas at from 2,745 to 2,901 feet.

Meigs County

In Meigs County, Sutton Township, the Preston Oil Co.'s No. 3-1,300 on the Emma Williams, Section 24, got an 8-bbl. pumper from the upper Berea sand at from 1,786 to 1,807, total depth 1,813½ feet. Same company is drilling deeper Nos. 1-984, 2-955 and 1-958 on the Robert Crew farm, Section 23.

In Jackson County, Lick Township, the Penn Ohio Gas Co. has a light gas producer in No. 4 L. M. Evans, Section 35, in the Clinton lime at from 2,619 to 2,627, total depth 2,670 feet. Ohio Fuel Gas Co. is drilling No. 1-3,458 on the Julia Hill, Lot 84, same township, also drilling No. 3-3,497 on the W. E. Forshey, Section 22, Franklin Township.

In Vinton County, the Ohio Fuel Gas Co. is starting a second test or location for No. 2-3,595 on the H. C. Wyatt, Section 7, Richland Township.

Stark County is attracting more attention than for a long period in the recent completion of a good gas well by F. A. Brendall and others which brings possibilities for some new gas territory in Lawrence Township. Johnson and Stolz are drilling No. 1 on the Steve Kossis, Section 4, and made a location for a second test on the D. M. Sisler, same section. Ohio Brass Co. is drilling a test on the Phil Moke, same section, as is the Penn Oil & Gas Co., on the A. M. Nichter, also in Section 4. In Lexington Township, same county, the Alliance Oil Co.'s test on the Structure & Furnace Co.'s tract, Section 36, is reported good for 3 bbls. from 624 to 670 feet.

In Fairfield County, Rush Creek Township, near Bremen, Merle Myers and others' second test on the Joseph J. Johnston, Section 2, is reported good for 14 bbls. at from 2,670-90 feet. City Natural Gas Works made a location on the Phillip Farmer, Section 1, Berne Township.

In Guernsey County, Valley Township, the Glendenning Development Co. struck a duster on the Ben E. Finley,

(Continued on Page 178)

DEEP TEST IN NORTHERN OHIO COUNTY INTERESTING WESTERN KENTUCKY

By Whit
Staff Correspondent, Kentucky-Tennessee

OWENSBORO, Ky., May 25.—One of the interesting topics in the western Kentucky area is the announcement that the Cumberland Petroleum Co. will drill a hole on the 276-acre farm of Bob Hamilton, in the eastern edge of the Ambrose-Weller Pool, in northern Ohio County, to 2,000 feet or more, if necessary to determine possibilities of the several sands of that section.

The company has drilled close to 35 wells in the various shallow sands on the farm, but there is and has been a belief a vein of oil would be found at a much lower depth. It is known that a sand exists in the northwestern part of Kentucky in Union County, where, below 2,000 feet, a sand known in Illinois as the McCloskey sand was found and had a fair showing of oil, and this same McCloskey sand may be found under Daviess, Ohio, McLean and other counties near the northwest part of Kentucky. The McCloskey sand was a phenomenal producer of oil in the Illinois Field especially in Lawrence County. This is a sand that old-timers concluded was similar to the Gordon sand found in the more eastern fields. The production from this sand in Illinois has shown excellent staying qualities, making steady pumpers for years, as there are numerous wells in that sand at this time that have been producing for more than 20 years.

Week's Work

A summary of operations in the Kentucky fields shows 21 completions, 16 producers with an initial production of 615 bbls., 4 dry holes and 1 gas well.

County—	Comp. wells	Oil Prod.	Dry	Gas
Daviess	11	280	3	1
Ohio	9	335	0	0
McLean	1	0	1	0
Total	21	615	4	1

Daviess County Wells

One of the best wells in Daviess County was the C.C.C. Oil Co.'s No. 5 on the Little Hinton lease, in the Jones Pool southwest of Whitesville, estimated around 70 bbls., looking like one of the best found so far on the lease. The Petroleum Co.'s No. 15 on the C. L. Burns farm, in the Utica Field, is estimated at 60 bbls. initial.

Cumberland Petroleum Co. and others drilled a dry hole on the Chancellor farm, between the Jones and Burton Pools. Same company's No. 4 on the S. H. Eastman farm, south of the Barton Pool, is reported at 35 bbls. initial. The Kemrow Co. of Cleveland, Ohio, is also interested in this lease.

Vickers, White and others' test on the W. L. Mills lease, south of Oklahoma, in the Ward Pool, is good for 15 bbls. at 435 feet. Casing in this well was set at 420 feet and sand from 429 to 431 feet. Buckner-Larue Oil Co.'s No. 1 on the D. B. Knight, in the Hayden Pool, topped the sand at 990 feet and drilled in at 1,020 feet, getting a 20-bbl. producer. Huff & Calderwood's test on the Jess Litsey, in the Salmon Pool, drilled in a duster. L. C. Young and others' No. 3 on the Len Sparks farm, in the Red Hill district, developed into a nice gas well estimated at 2,000,000 feet. The Trognite Oil & Gas Co.'s No. 1 Tom Knight, in the Hayden Pool, is showing for 15 bbls.

Bill Stevens drilled a dry hole in the NW cor. of the Nace Coomes farm, southwest of Pellville in the eastern part of Daviess County. Creek Drilling Co.'s No. 6 on the J. F. Leet 66 acres, is reported good for 65 bbls. initial and is in the Brown Pool.

Ohio County Wells

The Cumberland Petroleum Co.'s No. 19 on the north 176 acres of the Bob Hamilton farm, in the east edge of the Ambrose-Weller Pool in Ohio County, looks good for better than 60 bbls.

James C. Ellis drilled in what looks like a 50-bbl. producer in No. 12 on the B. R. Keith farm, near Moria Church, southeast of the Ambrose Pool and east of north of the Bartlett Pool, also to the northeast of Taffy. Same party drilled what looks like a 35-bbl. producer in No.

(Continued on Page 178)

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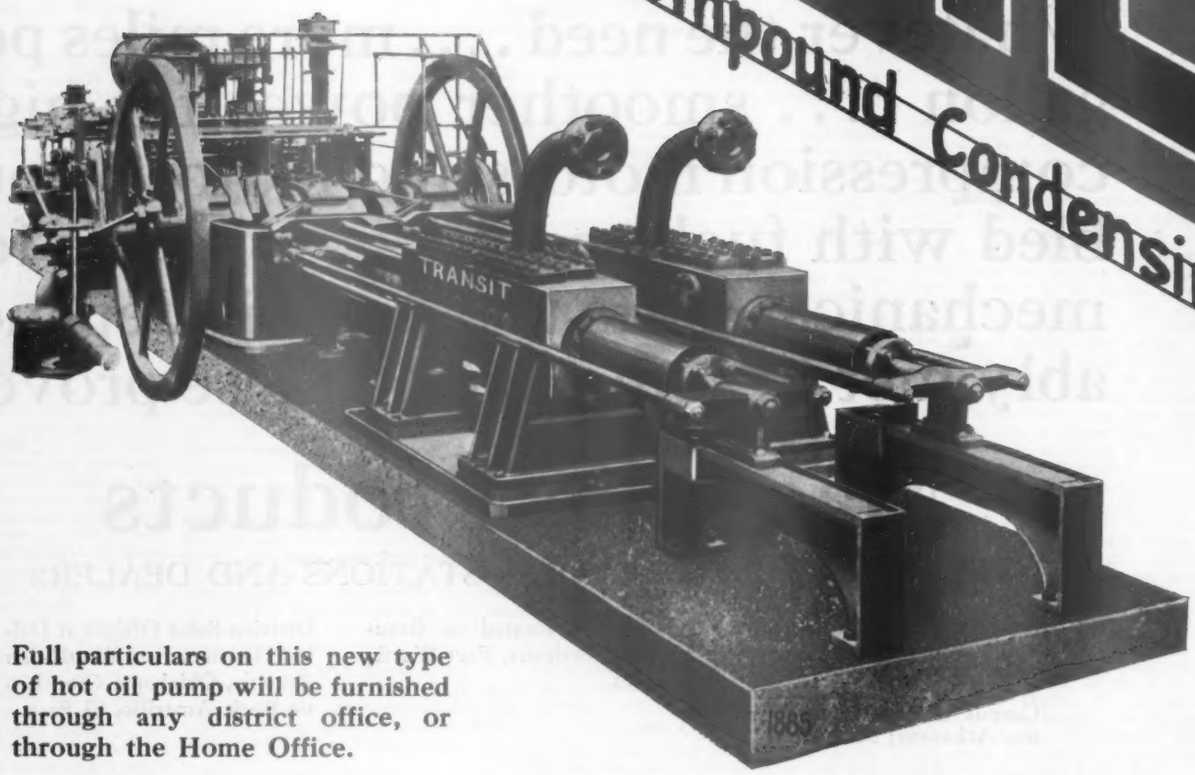

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More and Better Wells in the East

All Located in Defined Territory, Mostly Southeast Ohio
Greater Activity in Boone and Lincoln Counties, West Virginia

By D. S. Wakenight
Staff Correspondent, Eastern Fields

PITTSBURGH, Pa., May 27.—There was a little improvement in both the size and number of wells completed in the eastern fields, although all are located in defined territory. It has now been almost a year since a new pool was discovered and when defined it was found to be small in area. A good producer in some locality does not give assurance that others can be found in the immediate vicinity. If it were not for the attractive market for high-grade crude there would be much less doing at this time. Under prevailing conditions there is not enough of it to meet the demand.

Best Producers for Week

All of the good wells completed were in southeast Ohio. West Virginia completed more than the usual number of wells, but most of them were gassers. In the gas areas in Boone and Lincoln Counties there is considerable activity.

In the deep sand territory in southeast Ohio, in the NE of Section 8, Fallsburg Township, Licking County, the Emerald Petroleum Co. completed and shot in the Clinton sand a test on the J. A. Little farm. It produced 100 bbls. the first 24 hours. In the SW of Section 5, Hopewell Township, Muskingum County, the Hope Construction & Refining Co. got a 70-bbl. producer at No. 4 on the Joseph Varner farm.

In Section 2, Perry Township, Licking County, W. J. McClay and others have completed and shot in the Clinton sand a test on the Emmet E. Hoover farm. It produced 85 bbls. the first 24 hours. In the SE of Section 4, Hopewell Township, Muskingum County, the Hope Construction & Refining Co.'s No. 4 on the Joseph Varner farm produced 70 bbls. the first 24 hours.

In Section 4, Pike Township, Coshocton County, the Preston Oil Co.'s test on the Roy Rine farm is good for 28 bbls. a day. In Section 9, Fairfield Township, the same company has a 35-bbl. producer in the Big lime at a test on the Ernest Mallett farm.

In Section 6, Jackson Township, Muskingum County, the Hope Construction & Refining Co. has completed in the Clinton sand No. 6 on the W. E. Helphrey farm. It produced 65 bbls. the first 24 hours. In Section 12, Ward Township, Hocking County, the Preston Oil Co.'s No. 1,288 in the Sunday Creek Coal Co.'s property is good for 20 bbls. a day in the Clinton sand .

Shallow Sand Wells

In Section 31, Enoch Township, Noble County, the Secrest Oil Co.'s test on the Frank Barnhart farm is a very light pumper in the Macksburg 500-foot sand. In Lawrence Township, Washington County, the J. B. Braden Oil Co. and others have a 2-bbl. pumper in the second Cow Run sand at No. 8 on the John Lee Hall farm. In Section 28, Newport Township, Frank Hayes has a very light gasser in the Salt sand on the Frank Hays farm. In Sutton Township, Meigs County, R. C. Williams and others are drilling a second test on the W. B. Cross farm. In Independence Township, Washington County, the Herlan-Schramm Oil Co. is drilling on the Harry Feltner farm.

In the NE of Section 8, Fallsburg Township, Licking County, the Emerald Petroleum Co. completed and shot in the Clinton sand a test on the J. A. Little farm. The well produced 100 bbls. the first 24 hours.

In the NW of Section 4, Pike Township, Coshocton County, the Ohio Fuel Oil & Gas Co. has completed in the Clinton sand a test on the Roy Rine farm . It is showing for a 25-bbl. producer.

Wayne and Medina Counties

In Lot 2, NW of Congress Township, Wayne County, J. M. Williamson & Co. completed No. 4 on the Lois and C. O. Williamson farm. It is dry in the Berea grit. In Lot 4, Section 10, Chatham Township, Medina County, the Oko Oil & Gas Co. has completed No. 22 on the T. W. Brimmer farm. It is also a duster in the same formation.

In Section 3, Perry Township, Monroe County, Martin Yester has started to drill on the Gertrude Weigle farm. In Louden Township, Carroll County, Eaton and others are drilling on the William Harding farm. In Washington Township, the Natural Gas Co. of West Virginia is drilling a second test on the Jesse Herrington farm. In Franklin Township, Monroe County, S. A. Cobb is drilling a second test on the J. E. Turner farm. In Washington County, Liberty Township, William Dennis is drilling on the Parker S. Brown farm.

In the SW of Section 4, Pike Township, Coshocton County, Ohio, the Preston Oil Co. completed and shot in the Clinton sand a test on the Roy Rine farm. The well produced 28 bbls. the first 24 hours. In Lot 11, Hanover Township, Licking County, the Edward H. Everett Co. completed a second test on the Laura A. Shipley farm. It is a 15-bbl. pumper in the same formation.

Duster in Guernsey County

In the SW of Section 16, Jackson Township, Guernsey County, the Preston Oil Co. completed in the Berea grit No. 9 on the W. C. McCourt farm. It is a duster. At Bollin Mills, Section 3, Knox Township, Vinton County, the Co-operative Oil Co. has completed in the same formation No. 3 on the Garfield Brooks farm. It is a 7-bbl. pumper.

In the NE of Section 8, Harrison Township, Perry County, the Northern Development Co. has completed in the Clinton sand a test on the T. A. Wilson farm. It will probably be good for 5 bbls.

In Section 9, Perry Township, Licking County, M. F. Whitehill's No. 11 on the Alice Ashcraft farm is an 8-bbl. pumper in the Berea grit. In Section 9, same township, the Hope Construction & Refining Co.'s second test on the Sarah M. Rector farm is dry in the Clinton sand.

Meigs County

In Sutton Township, in Lot 294, the Southern Ohio Petroleum Co. has completed in the Berea grit a test on the Frank Winebender farm. It is a very light pumper. In Section 32, Bedford Township, the Logan Gas Co. has a gasser, in the Berea grit on the John Heitzer farm. In the SW of Section 17, Hardy Township, Holmes County, the Ohio Fuel Gas Co. drilled through the Clinton sand a test on the Thomas Horn farm. It got just a little show of oil in the stray sand, not enough to warrant testing.

In Harrison Township, Perry County, the Ohio Fuel Gas Co. is drilling tests on the Mrs. Charles Downer, May & Watts, George Grabiel, J. W. Burkley, Fannie Moore, James May and John Combs farms. The Leonard Oil & Gas Co. is due in the Clinton sand on the A. L. Giles farm. Bell, Scholl and others have a rig up on the J. W. Brumage farm. The Northern Development Co. has a rig completed on the Wilson heirs' farm. Gutherie & McIntyre are drilling on the A. Cannon farm. In Perry Township, Muskingum County, Wilson Brothers have a rig up on their own farm and Johnson & Holtz have a rig up on the Allied Coal Co.'s property.

WEST VIRGINIA

The West Virginia fields have departed from the general rule and completed a few oil wells instead of gassers. They are not large producers. In Henry district, Clay County, the Virginian Gasoline & Oil Co. completed a second test on the J. and L. J. Reed farm estimated good for 20 bbls. a day, after shot in the Big Injun sand. The location is 500 feet southwest of the same company's second test on the P. C. Reed farm. In the same district and county, the same company has completed and shot No. 18 on the Brown, Swann, Goshorn & Geary tract. It is a 10-bbl. pumper in the same formation.

In Jefferson district, Lincoln County, Earl Cameron's second test on the J. A. Stone farm is a gasser. In Scott district, Boone County, the Cameron Oil & Gas Co. has a gasser on the W. L. Stone farm. In Chapmanville district, Logan County, W. G. McCorkle & Co. have a gasser on the J. B. Garrett farm. In the same district, the Trojan Gas Co. has a gasser in the Salt sand at No. 4 on the Edward Garrett farm.

In Lee district, Calhoun County, the Hope Natural Gas Co.'s 7,285 on the Dee Nitz farm is dry and abandoned. In the same district, G. B. Lewis & Co. have drilled down to the Big Injun sand an old well on the Beach Hall farm. It is a gasser in the Big Injun sand. In DeKalb district, Gilmer County, J. A. Kelly & Co.'s test on the J. A. Kelly farm is holding up at 20 bbls. a day.

In Sherman district, Calhoun County, about 1,200 feet northeast of the Virginian Gasoline & Oil Co.'s test on the Everett Proudfoot farm, the Hope Natural Gas Co. has completed in the Big Injun sand a test on the F. S. Barr farm. It is a 5-bbl. pumper. In Center district, C. B. Lewis & Co. have a gasser in the salt sand on the R. C. Hall farm. In the same district, the same company has a 10-bbl. pumper on the R. L. Stump farm.

In Sherman district, Boone County, the Pure Oil Co.'s Nos. 35, 36 and 37 on the Federal Coal Co.'s property are gassers in the same district. G. L. Cabot has a duster at No. 25 on the same property.

In Grant district, Cabell County, the Larner Gas Co.'s test on the H. T. Hall farm is a gasser in the Brown shale. In Curry district, Putnam County, the Reishman Oil & Gas Co. has a rig completed on the A. C. Kimbrough farm. In Jefferson district, Kanawha County, S. W. Kirtley and others have a rig up on the Frank Wisman farm.

In Clay district, Monongalia County, the Chartiers Oil Co. has a rig completed on the J. A. and R. Hillberry farm. In Sherman district, Calhoun County, G. L. Cabot has cleaned out and shot an old well, increasing its production from 2 to 5 bbls. a day.

In Ravenwood district, Jackson County, West Virginia, the South Penn Oil Co.'s No. 1 on the C. S. McCarty farm is still producing 55 bbls. and No. 3 80 bbls. a day.

In Spencer district, Roane County, the Federal Oil & Gas Co. has completed No. 3 on the L. C. Vandall farm. It is a 5-bbl. pumper in the Salt sand. In Spencer district, Roane County, the Hope Construction & Refining Co. has a very light pumper on the W. R. Goff farm. In the same district, the same company's second test on the Craig-Bartlett farm is a gasser good for 300,000 feet.

In Spencer district, Roane County, the Federal Oil & Gas Co. has completed in the Salt sand No. 44 on the Roberts, Pell & Newman tract. The well produced 27 bbls. the first 24 hours. In Center district, Calhoun County, C. B. Lewis & Co. have drilled down an old well on the Beach Hall farm. It is a gasser in the Big Injun sand. In Lee district, the Hope Natural Gas Co.'s No. 7,245 on the Dee Nitz farm is dry and abandoned.

In DeKalb district, Gilmer County, J. A. Kelly & Co.'s test on the J. A. Kelly farm is holding up at 20 bbls. a day. In Jefferson district, Lincoln County, the Hope Natural Gas Co.'s No. 7,245 on the Julia Adkins farm is a gasser in the Big Injun sand.

Ritchie County

On McFarlan Creek, Murphy district, Ritchie County, the South Penn Oil Co. has completed in the Big Injun sand No. 12 on the H. S. and R. Wilson farm. It is showing for a light pumper.

On Tanners Run, DeKalb district, Gilmer County, the Ellis Oil & Gas Co. drilled its second test on the Ellis farm through the Big Injun sand. It is good for 5 bbls. a day. In the same district, the McCall Drilling Co. has a 2-bbl. pumper at a second test on lease No. 2 of the Riddle Brothers' farm. The Hope Construction & Refining Co. has the rig completed for a second test on the Drusilla Hardman farm.

In Henry district, Clay County, the Virginian Gasoline & Oil Co. has a 20-bbl. producer at No. 6 on the James Reed & Co.'s 62 acres. The same company is drilling a second test on the Brown, Swann & Goshorn tract.

In Clay County, Henry district, the United Fuel Gas Co. has completed in the Salt sand No. 1,859 on the Brown, Swann & Goshorn tract. It is a gasser estimated good for 500,000 feet. On Elk River, Big Sandy district, Kanawha County, 1,800 feet east of the mouth of Falling Rock Creek, the Buff Lick Oil & Gas Co. has completed a test on the Rebecca J. Young farm. It is dry in the Weir sand but is a light gasser in the Big Injun sand.

Marion County

In Mannington district, Marion County, the Carnegie Natural Gas Co. has completed No. 1,437 on the Martha A. Hennen farm. It has a light show of oil in the Fifth sand. In the same district, the Pittsburgh & West Virginia Gas Co. has completed in the Gordon sand No. 2,391 on a part of the same farm. It is a gasser.

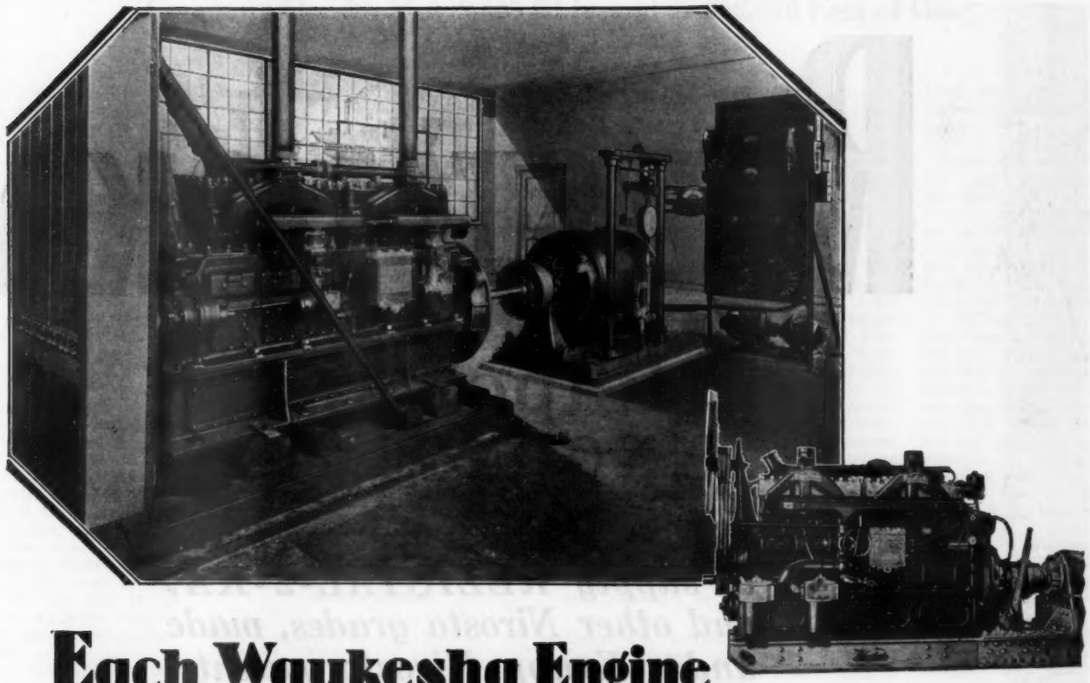
In Center district, Wetzel County, the Chesebrough Manufacturing Co. has drilled deeper its test on the H. H. Antill farm showing for a 5-bbl. pumper in the Fifth sand. In Geary district, Roane County, the United Fuel Gas Co. has a gasser in the Salt sand at No. 3,901 on the W. H. Hunt farm.

In Lee district, Calhoun County, F. F. McIntosh & Co. have drilled deeper No. 3 on the W. H. Slider farm. It is a gasser in the Big Injun sand. The Valley Mills Oil & Gas Co. in Union district, Wood County, has a gasser on the W. F. Sugden farm. In McKim district, Pleasants County, Adam Ward & Co.'s test on the George Varner farm is dry in the Berea grit.

Starting New Work

On the waters of Mill Creek, Elk district, Kanawha County, 500 feet north of the Hope Construction & Refining Co.'s test on the S. A. Buckner farm, the Mill Creek Oil & Gas Co. has a rig completed on the G. B. Buckner farm. In Grant district, Cabell County, the Harshbarger Oil & Gas Co. is rigging up on the C.&C.R.R. right of way. In the same district, the same company is drilling at 2,600 feet on the G. A. Rod-

(Continued on Page 180)



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Gray County Completes Two Big Wells

Magnolia Brings in One Flowing 9,725 Bbls. and The Texas Company One Making 9,000 Bbls. and 29,000,000 Feet of Gas

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., May 27.—The Panhandle district saw an increase of 805 bbls. in production during the week, while Wichita Falls district fell off 211 bbls. Gray County saw the bringing in of some of the largest wells in its history, adding several thousand barrels production. The Magnolia Petroleum Co. brought in one producer flowing 9,725 bbls. of oil with 10,000,000 feet of gas, in its No. 4 Bowers. Total depth of this well is 2,970 feet. The Texas Company also brought in a 9,000-bbl. well in its No. 2 Faulkner, which topped the pay at 2,855-65 feet, and was shut down at 2,865 feet. With the initial production of oil there was also a gauge of 29,000,000 feet of gas. The Phillips Petroleum Corp.'s No. 1 Palmer was also a good well of 1,350 bbls. with 8,000,000 feet of gas from pay at 2,795-2,816 feet, the latter depth being the total depth. Joe Maucini, geologist for the Marland Production Co., is reported to have discovered this pool, one of the hottest spots in the Panhandle district, with some of the largest wells in that area.

Archer County Tests

Archer County did not rank so high this week, due to the fact that it has 15 tests abandoned as dry holes, completing 3 wells with a total initial production of only 90 bbls.

Staley and Wynne sold their holdings in the Kemp and Kempner farm in the southwestern part of Wichita County to the Arkansas Natural Gas Co. for a consideration of $160,000. This deal includes 14 producing wells which are making a total of approximately 300 bbls. daily.

The Fain-McGaha company has a nice well in No. 1-A Taylor in the NW cor. of the S half of Section 17, Block 11, A.T.&N.C. Survey. Sand was encountered at 1,486 feet, but was drilled to 1,492 feet before completing. This well is a south offset to the United Producers and others' No. 1 Taylor which came in last week. These two wells open a new pool.

Show in Young County

Young County was made interesting by the Pandem Oil Co.'s No. 1 Birch striking an oil show in a porous lime at 4,248 feet. It was shut down at 4,250 feet with 660 feet of oil in the hole, making two flows. This discovery is in the center of the northwest 20 acres of Section 477, T.E.&L. Company Survey, 5 miles northwest of Graham. The test will undoubtedly open up a new pool. The Panhandle Refining Co. brought in a good well in No. 1 Morrison, several months ago, 1 mile to the north of the Pandem well. The Panhandle well made a daily average of 350 bbls. from 4,283 feet.

The raise in Panhandle prices will add impetus to wildcatting in that area. Top price now for 44 gravity oil is $1.70. Wheeler County has a top price of $1.65 for 44 gravity and above, that below 30 gravity bringing only 90 cents with a 5-cent differential for each degree above this. Crude below 32 in Carson and Hutchinson will bring 90 cents with a 5-cent differential for each degree above this mark, top price being $1.55 for 44 gravity and above. These prices mean an advance of about 31 to 33 cents.

Coleman County's Biggest Well

Coleman County got its best producer this week in a well 9 miles northeast of the town of Coleman. It is the Eastland Oil Co.'s No. 1 Belle Keeny, in the Richard Cochran Survey No. 269. Sand was topped at 1,992 feet over a week ago, and the well completed at that depth for an initial production of 200 bbls. daily. This week the hole was drilled 2 feet deeper, and the production jumped to about ten times its previous initial gauge of 45 gravity oil, making 2,000,000 feet of gas. With the price increase in this district, this crude will market for about $1.85.

ESTIMATED DAILY AVERAGE PRODUCTION NORTH TEXAS
Week Ended May 25

Panhandle District	
Carson County	6,680
Hutchinson County	25,255
Gray County	29,345
Moore County	2,010
Potter County	10
Wheeler County	645
Total this week	63,945
Total last week	63,140
Increase	805
Wichita Falls District	
Archer County	17,251
Baylor County	63
Clay County	583
Cooke County	6,058
Jack County	2,626
Haskell County	175
Montague County	6,821
Throckmorton County	651
Wilbarger County	26,571
Young County	6,915
Wichita County	26,788
Total this week	94,502
Total last week	94,714
Decrease	211
Ranger District	
Brown County	7,897
Callahan County	3,711
Coleman County	3,914
Comanche County	1,197
Palo Pinto County	359
Ranger	5,308
Shackelford County	13,163
Stephens County	6,554
Total this week	42,103
Total last week	42,410
Decrease	307
Grand total this week	200,550
Grand total last week	200,263
Increase	287

WICHITA COMPLETIONS
Week ending May 25

Archer County

Burns' No. 1 Wilson was dry and abandoned at 1,600 feet. Continental Oil Co.-Perkins & Cullum's No. 9 Wilson was dry and abandoned at 1,469 feet. Hammond's No. 1 Parrish was dry and abandoned at 1,625 feet. Omohundro and others' No. 1 Wilson was dry and abandoned at 1,577 feet. Pace's No. 2 Ford was dry and abandoned at 1,153 feet. Scott and others' No. 1 Miller was dry and abandoned at 1,700 feet. Shappell Oil Co.'s No. 46-A Jackson had an initial production of 20 bbls. at 1,791-96 feet. The Texas Company and others' No. 3 Kemp & Kempner was dry and abandoned at 1,862 feet. United Producers and Petroleum Producers' No. 1 Brown was dry and abandoned at 1,500 feet. Bradstreet & Co.'s No. 1 Benson was dry and abandoned at 935 feet. Continental Oil and Cullum's No. 1 Falls Co. fee made 130 bbls. at 1,113-25 feet. Cummul and others' No. 1 Falls Co. fee made 30 bbls. at 1,116 feet. Estracado Oil Co.'s No. 1 Ball was dry and abandoned at 832 feet. Hunter and others' No. 1 Kovan was dry and abandoned at 1,508 feet. Johnston's No. 2 Garvey was dry and abandoned at 845 feet. Johnson and others' No. 1 Key was dry and abandoned at 1,463 feet. Lincoln's No. 2 Mrs. George Abercrombie was dry and abandoned at 1,320 feet. May Camp Drilling Co.'s No. 1 Prideaux was dry and abandoned at 647 feet.

Continental Oil Co.'s No. 2 J. T. Richardson, located northwest part of Lot 10, Thomas McCoy Survey, flowed 10 bbls. hourly at 1,147-52 feet. This is the largest well in this new pool.

Cooke County

Benson Brothers' No. 1 Gibson was dry and abandoned at 1,511 feet. Kewanee Oil & Gas Co.'s No. 1 Dennis was dry and abandoned at 1,956 feet. Their No. 16 Timmis made 91 bbls. first 24 hours at 1,045-1,193 feet. Lloyd Oil Corp.'s No. 2 Wheelock was dry and abandoned at 1,397 feet. Shell Petroleum Corp.'s No. 1 Dennis was dry and abandoned at 2,043 feet.

Montague County

American Refining Properties and others' No. 1 Hoffman was dry and abandoned at 1,759 feet. Bridwell Oil Co.'s No. 1 Edmondson made 40 bbls. at 1,099-1,108 feet. Lanier and others' No. 1 Holt was dry and abandoned at 2,509 feet.

Young County

Botler and others' No. 1 Williams was dry and abandoned at 1,030 feet. Bratcher's No. 7 Edwards was drilled to a total depth of 490 feet, topped the pay at 445-90 feet and hade an initial production of 8 bbls. Perkins and Butler's No. 1 Whitt was drilled to a total depth of 1,016 feet, topped the pay at 1,013 feet and had an initial production of 52 bbls. Phitz and others' No. 1 Scott was drilled to a total depth of 3,965 feet, topped the pay at 3,930 feet and had an initial production of 50 bbls. flowing. Paull Oil Co.'s No. 4 Thompson was drilled to a total depth of 2,089 feet, topped the pay at 2,077 feet and had an initial production of 65 bbls. Stovall's No. 12 fee was drilled to a total depth of 4,030 feet, topped the pay at 3,908-20 feet and had an initial production of 25 bbls. oil and 2,000,000 feet of gas.

Wichita County

King Royalty Co.'s No. 4 Boyd was drilled to a total depth of 1,793 feet, topped the pay at 1,784-93 feet and had an initial production of 30 bbls. Wright's No. 3 Jennings was drilled to a total depth of 1,634 feet, topped the pay at 1,603-23 feet and was dry and abandoned.

Wilbarger County

Easter Oil Co.'s No. 4 Waggoner was drilled to a total depth of 2,365 feet, topped the pay at 2,348-61 feet and had an initial production of 520 bbls. Empire Gas & Fuel Co.'s No. 3 Waggoner was drilled to a total depth of 2,401 feet, topped the pay at 2,374-82 feet and had an initial production of 72 bbls. Grayback Developing Co.'s No. 1 B. Waggoner was dry and abandoned at 2,025 feet. Its No. 1 W. Waggoner was dry and abandoned at 1,850 feet. Lewis Production Co.'s No. 7 Waggoner was drilled to a total depth of 2,415 feet, topped the pay at 2,386-2,415 feet and had an initial production of 200 bbls. Phillips Petroleum Corp.'s No. 4 Waggoner was drilled to a total depth of 2,404 feet, topped the pay at 2,379-2,402 feet and had an initial production of 212 bbls. Its No. 2 Waggoner was drilled to a total depth of 1,876 feet, topped the pay at 1,859 feet and had an initial production of 6 bbls. Their No. 26 Waggoner had an initial production of 47 bbls. at 1,863-1,890 feet. Robertson and others' No. 3 Waggoner was drilled to a total depth of 2,002 feet, topped the pay at 1,987 feet and had an initial production of 80 bbls. Robertson & Grisham's No. 1 Waggoner was dry and abandoned at 2,002 feet. Staley, Wynne & Co.'s No. 1 Waggoner was dry and abandoned at 1,926 feet. Stidham & Thresher's No. 1 Waggoner was dry and abandoned at 1,985 feet. Waggoner Refining Co.'s No. 8 Waggoner was drilled to a total depth of 2,420 feet, topped the pay at 2,330-44 feet and had an initial production of 25 bbls.

RANGER DISTRICT
Week Ended May 25

Brown County

Anderson's No. 4 Leatherwood had an initial production of 15 bbls. after having a 10-quart shot at 1,168-72 feet. Humble Oil & Refining Co.'s No. 18 Armstrong had an initial production of 25 bbls. at 1,188-1,211 feet. Prairie Oil & Gas Co.'s No. 6 Armstrong was drilled to a total depth of 1,540 feet and had an initial production of 9,680,000 feet of gas that later exhausted and the well was dry and abandoned. Sinclair Oil & Gas Co.'s No. 1 Long was dry and abandoned at 1,645

(Continued on Page 72)

WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week Ending May 27
CARSON COUNTY

Company, well, farm, name, section and block—	Remarks—
Champlin Ref. Co.'s No. 3 McConnell, 330 ft. S and E of NW W½ NW, Sec. 67, Blk. 4, I.&G.N.R.R. Sur.	Stdzng. at 2,247 ft.
Delmar Oil Co.'s No. 4 Nail, 330 ft. from N line, 330 ft. from W line of W½ SE, Sec. 198, I.&G.N., Blk. 3	Location.
Empire G. & F. Co.'s No. 1 Armstrong, 330 ft. from S line and 330 ft. from E line of NW SE, Sec. 31, T.T.R.R. Sur.	Drlg. 3,323 ft.
Empire G. & F. Co.'s No. 15 Burnett, C NW, Sec. 4, Blk. 5, I.&G.N.R.R. Sur.	S.D. 2,590 ft.
Empire G. & F. Co.'s No. 16 Burnett, C NW cor. Sec. 104, Blk. 5, I.&G.N.R.R. Sur.	Drlg. 1,500 ft.
Gulf Prod. Co.'s No. 1, 330 ft. S and W NE cor. NW, Sec. 111, Blk. 4, I.&G.N.R.R. Sur.	Drlg. 2,454 ft.
Empire G. & F. Co.'s No. 5 M. P. Co.'s "A," 330 ft. S and E of NW cor. SE SW, Sec. 91, Blk. 4, I.&G.N. Sur.	Drlg. 1,000 ft.
Empire G. & F. Co.'s No. 1 Deahl, 660 ft. from N line, 660 ft. from W line, Sec. 21, Blk. Y-2	Location.
Gulf Prod. Co.'s No. 6 Noel, 330 ft. S and 1,320 ft. E of NW cor. SW, Sec. 198, Blk. 3, I.&G.N. Sur.	Oil 3,170-75 ft; 58,000,000 ft. gas; T.D. 3,248 ft; swbd. 120 bbls. in 11 hrs; C.O. and swbng.
Stubblefield et als' No. 1 Garner, 330 ft. from S and E lines SE, Sec. 104, Blk. 4	Rig on ground.
Marland Prod. Co.'s No. 1 Burnett-L, 440 ft. S and 1,320 ft. NW NE cor. Sec. 79, Blk. 4, I.&G.N. Sur.	S.D. 2,763 ft.
May Pet. Co.'s No. 7 fee, 990 ft. from W line, 890 ft. from S line SE, Sec. 91, Blk. 4, I.&G.N. Sur.	Rig.
McConnell O. & G. Co.'s No. 1 McConnell, 330 ft. from N line, 330 ft. from E line W½ NE, Sec. 65, Blk. 4, I.&G.N.R.R. Sur.	Spudding.
McElroy Oil Co.'s No. 1 Lewis, 330 ft. S and E of NW cor. SW NE, Sec. 115, Blk. 4, I.&G.N.R.R. Sur.	Show oil 3,040-45 ft; T.D. 3,105 ft; spraying 20 bbls. daily from 3,080 ft.
Midwest Explin. Co.'s No. 1 Cooper, 330 ft. each way from SE cor. W½ NW, Sec. 5, Blk. 9, H.&G.N. Sur.	Spudding.
Midwest Explin. Co.'s No. 2 Cooper, 990 ft. from S line and 330 ft. from W line W½ NW, Sec. 5, Blk. 9, I.&G.N. Sur.	Location.
Morris et als' No. 1 Barnard, NW cor. SW SE, Sec. 44	2,000,000 ft. gas 2,752-62 ft; drlg. 2,910 ft.

(Continued on Page 113)

New Pool Uncovered in Pecos County

Well 9 Miles Northwest of Fort Stockton Pumps 375 Bbls.
Jones County Gets Another Well in Fourth Pay Horizon

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., May 27.—Pecos County was again in the limelight last week when a new pool was uncovered 9 miles northwest of Fort Stockton, and Jones County threatened another new pay horizon giving commercial production.

The Phillips Petroleum Co.'s No. 1 Pryor, (Courtney), 9 miles northwest of Fort Stockton, in the northwest quarter of Section 78, Block OW, T. &M. Railroad Survey, proved itself to be a commercial producer when it pumped 375 bbls. the first 24 hours and 79 bbls. the following 11 hours, not pumping off or showing water. Pay in this well was encountered at 1,345 feet, oil started filling the hole, and at 1,367 feet it was shut down, the hole standing with 1,000 feet of oil shortly after shutting down. Rods and tubing were run, and a pumping test made. Pumping a total of 454 bbls. before being shut in for storage on May 24, it has paved the way for more drilling in this immediate vicinity, but the fact that the Phillips company owns a block of 9,000 acres around the well will tend to prevent any flurry in drilling, as might have happened if the acreage had been cut up into small ownerships.

This is the fourth shallow pool for Pecos County, the last one discovered being the Pecos Valley Pool, 17 miles northeast of Fort Stockton, opened last November, and now having three small producers, with an 18,000,000-foot gas well 2 miles to the east. One of the shallow pools did not produce much oil, although several small producers were brought in with considerable gas. This was the old Trans-Pecos Pool, about 3 miles south of the Pecos Valley Pool.

Jones County Fourth Pay

In southwest Jones County, the Phillips Petroleum Co.'s No. 1 Walters, a half mile north of the original Noodle Creek Pool, encountered oil at 2,865 feet, apparently the same pay horizon that was encountered in The Texas Company's No. 6 Carter at 2,896 feet, 2½ miles to the north. The Texas Company well has been swabbing an average of about 85 bbls. daily. Top of pay in this well was 2,894 feet. The Phillips well produced 20 bbls. of crude in about 15 hours' testing, with only 1 foot in the pay, so it looks as if this would probably make another well from the fourth pay horizon to be picked up in Jones County, and other tests will no doubt be drilled deeper to seek this pay.

Deepest Well's New High

Group No. 1, (Texon Oil & Land Co.) No. 1-B University, the world's deepest producer, set another peak in crude production during the week when it gauged 2,597 bbls. of oil and 23,770,000 feet of gas. But this highest peak was one of three which had been reached over the week, the two previous peaks being 2,572.5 bbls. on May 21, and 2,575 bbls. on May 23. As a general rule it only raises its previous score once during the week, but this week broke the record when it set three highs.

Good Show in Irion

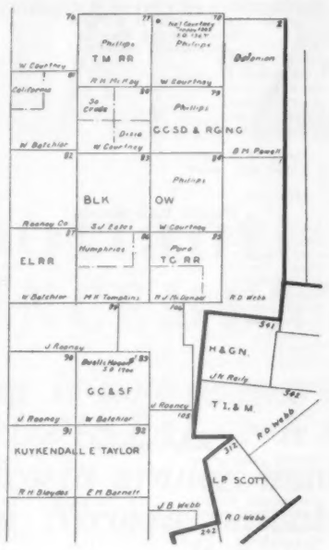
Kimbrough and Flinchbaugh picked up a good oil show in No. 1 Tankersley, 160 feet south and 200 feet west of the northeast corner of Section 712, Ford Willig Survey, Irion County, and for several days it has been swabbing about 15 bbls. daily from a total depth of 1,329 feet. The showing was encountered from 1,318 to 1,329 feet. Wesley West and others' No. 1 Suggs, in the SE NW SE, Section 19, Block 7, H.&T.C. Survey, picked up another showing of oil, this last show being at 6,772-75 feet. Other shows have been at 5,480-83 feet, 5,660-70 feet, and the first show, the largest, was encountered at 3,368 feet when the well swabbed 35 bbls. of oil and 40 bbls. of water. The oil tested 35.8 gravity. The well is now drilling at 6,805 feet.

Taylor County Well

The Mid-Continent Oil & Gas Co.'s No. 1 Taylor is trying hard to make a commercial producer in Taylor County, in the southeast corner of a 100-acre tract in Section 18, Guadalupe School Land, which was drilled to a total depth of 3,007 feet and plugged back to above showings. It was shot with 30 quarts from 2,443-60 feet with no results, and shot again with 60 quarts from 2,384-2,412 feet. It was later put on pump, after being cleaned out, and pumped 9 bbls. in 24 hours. It is doubtful just what the company will do with the well now, for it looks as if further shooting would not aid it materially.

Borden County Sale

W. A. Moncrief and J. C. Farrell, Fort Worth operators, have sold an 80 per cent interest in 4,400 acres out of a 6,500-acre block, to the Humble Oil & Refining Co., in Block 31, Township 4n, T. &P. Survey, Borden County, and the two former parties have made location for their No. 1 Munger in the center of the northeast of Section 15, of the same block. This location is made on a large structure which is running higher than practically all others in the county, and possibilities for this test look very promising. Gibson and Johnson's No. 1 Higgin, and Westyde's No. 1 Beal are two tests which have been made to the south of this present location, and the Julian Petroleum Corp.'s (Penn Oil Co.) No. 1 A. Long, about 5 miles to the northeast in Section 10, Block 30, 4-N, with a minus 82 on the line, is the highest well yet drilled in Borden County, top lime being 2,620 feet with an elevation of 2,518 feet. A nice showing was encountered in this well, which helps make the Moncrief-Farrell test a good looking possibility. The Atlantic Oil Producing Co. and Empire Gas & Fuel Co. have purchased protection acreage near this test.



Plat showing location of Phillips Petroleum Co.'s new wildcat discovery on the Pryor ranch, 9 miles northwest of Fort Stockton, Pecos County, Texas. (NW cor. Section 78, at extreme top of map). Sand was encountered at 1,345 feet and well shut down at 1,367 feet and put on the pump, making better than 8 bbls. per hour the first 15 hours. This opens the fourth shallow pool for Pecos County.

Gas Showing in Sutton

The Southern Crude Oil Purchasing Co.'s test in Sutton County encountered a nice gas showing in its No. 1 Allison, in the northeast quarter of Section 14, Block K, G.H.&S.A. Survey, in the northern part of the county. Gas sand was struck at 4,650-54 feet, making 1,000,000 feet of gas, but this was drilled through and a small amount of salt water was hit at 4,660-65 feet. The test is now drilling at 4,675 feet with no other shows of gas or oil. This is an interesting occurrence for this part of the Permian Basin, and is a good indication that there is a possibility of a discovery in this section at some future date. In comparison to the rest of the West Texas district the southern portion has had very little testing, and when the area does become active a new and interesting phase might be added. Such showings will undoubtedly call forth other tests which will all be watched closely.

ESTIMATED DAILY AVERAGE PRODUCTION WEST TEXAS
Week ending May 25

County—	Wells	Prod.
Crane County	305	34,836
Crockett County	44	2,092
Ector County	3	3
Fisher County	7	920
Glasscock County	25	628
Howard County	309	42,690
Jones County	83	4,177
Loving County	12	881
Mitchell County	145	2,647
Pecos County	307	98,710
Reagan County	241	18,431
Runnels County	3	48
Scurry County	5	31
Upton County	237	12,828
Ward County	4	1,510
Winkler County	584	143,905
Total this week	2,313	364,337
Total last week	2,318	352,844
Difference	5	11,493

West Texas Completions

Week Ended May 25

Culberson County

Deep Rock Oil Co. & Grisham-Hunter's No. 2 Kloh, located 800 feet north and 1,422 feet west of Section 33, Block 59, was dry and abandoned at 1,600 feet.

Fisher County

Landreth Production Co.'s No. 1 Cooper, located 440 feet north and east of NW Section 115, Block 1, had a hole full water at 2,335 feet, found an oil show at 2,770 feet, topped the lime at 3,200 feet and was dry and abandoned at 3,702 feet. Roeser & Pendleton's No. 1 Haught, located 2,220 feet from south and 1,320 feet from west of Section 191, Block 1, was dry and abandoned at 1,965 feet.

Howard County

Amerada Petroleum Corp.'s No. 9 Roberts, located 1,110 feet from south and 622 feet from east of Section 128, Block 29, topped the pay at 1,265 feet, was drilled to a total depth of 1,324 feet and had an initial production of 257 bbls. American Maracaibo's No. 5 Settles-C, located 330 feet from north and east of Section 6, Block 32, Township 2s, topped the pay at 2,210 feet, was drilled to a total depth of 2,285 feet, shot with 300 quarts at 2,212-77 feet and had an initial production of 800 bbls.

Winkler County

Empire Gas & Fuel Co.'s No. 1 Leck-B, located 2,310 feet north and 990 feet east of Section 3, Block 74, topped the lime at 2,825 feet, found an oil and gas show at 3,165 feet, sulphur water at 3,469 feet and was dry and abandoned at 3,780 feet. Southern Crude Oil Purchasing Co.'s No. 6 Hendricks T-67-3-A, located 990 feet from north and 1,320 feet from east of Section 4, Block B-12, topped the lime at 2,612 feet, topped the pay at 2,818 feet, was drilled to a total depth of 3,033 feet and had an initial production of 80 bbls. oil, 75 per cent water. Southern Crude Oil Purchasing Co.'s No. 5 Hendricks T-67-1-F, located

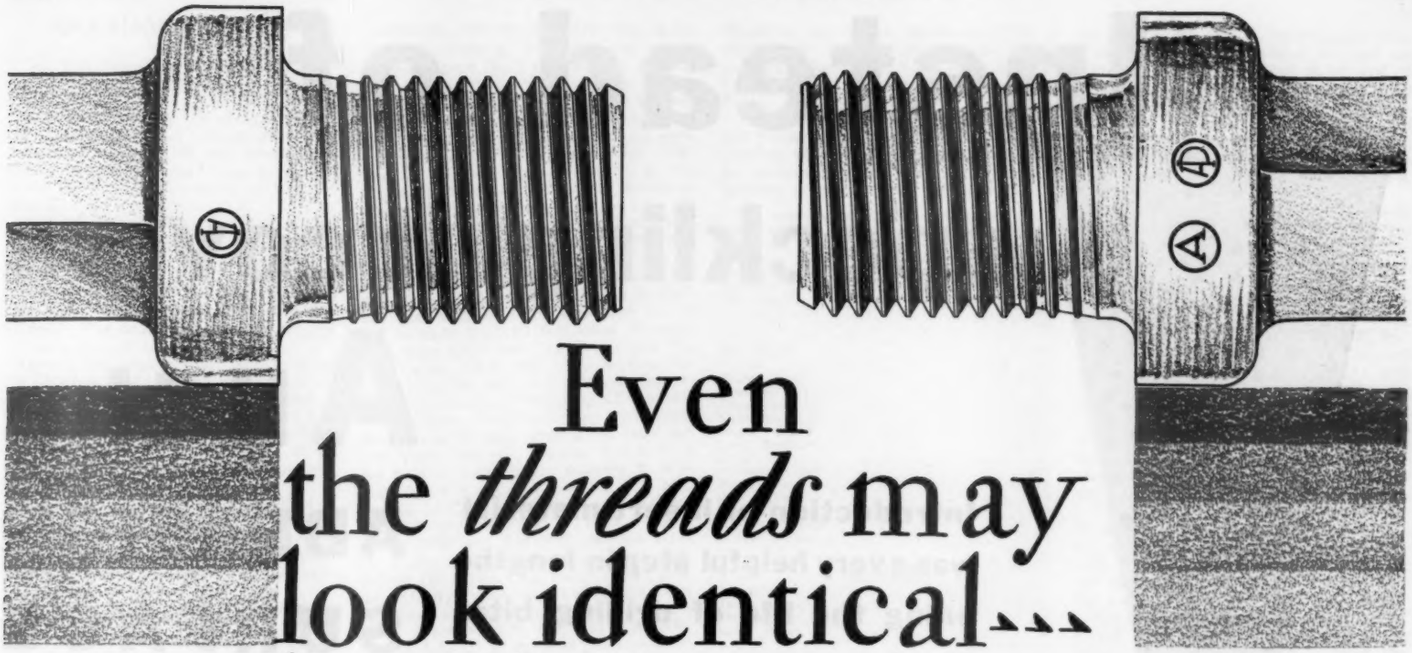
(Continued on Page 120)

WILDCAT OPERATIONS IN WEST TEXAS

Week Ended May 27

Company, farm and location—	Remarks—
ANDREWS COUNTY	
Mid-Continent Oil & Gas Co.'s No. 1 Fisher, 1,320 ft. N and 200 ft. E of SW cor. Sec. 5, Blk. A-36	Top salt 1,720 ft.; shut down 2,275 ft.
BORDEN COUNTY	
Gibson & Johnson's No. 1 Higginbotham, middle of S line of Sec. 3, Blk. 31, Twp. 3n, T.&P.R.R. Sur.	Drlg. 3,605 ft.
Moncrief et al's No. 1 Munger, C of SW Sec. 14, Blk. 31	Moving in material.
Teas & Wheeler's No. 1 Long, 1,320 ft. N and E of Sec. 27, Blk. 30, T.&P. Sur.	Location.
BREWSTER COUNTY	
Brewster Oil Co.'s No. 1 fee, 2,640 ft. S and 2,598 ft. E of NW cor. Sec. 45, Blk. G-15, G.C.&S.F.	Shut down 1,750 ft.
Cowden & Bowser's No. 1-A Jackson & Harmon, Sec. 1, Blk. 331, T.C.R.R. Sur.	Set 8-in. 1,530 ft.; shut down 2,000 ft.
Forrest Oil Co.'s No. 1 Skinner, C SW SE Sec. 100, Blk. 2, G.C.&S.F. Sur.	Rigging up.
J. M. Hickey's No. 1 Jackson & Harmon, NE cor. Sec. 182, Blk. 9, G.H.&S.A. Sur.	Shut down 2,000 ft.
Johnson & Weekley's No. 1 Jackson & Harmon, C Sec. 104, Blk. 10, G.H.&S.A. Sur.	Drlg. 1,050 ft.
Van McPhail's No. 1 McIntyre, SE cor. Sec. 59, Blk. 352, 7 mi. S of Alpine	Shut down 1,740 ft.
COKE COUNTY	
Cates & Dennis' No. 1 Mimms, 2,500 ft. S and 330 ft. E of NW cor. Sec. 47, Blk. 4, T.&P. Sur.	Oil 1,580 ft.; total depth 1,655 ft.; cleaning out.
Cates & Dennis' No. 2 Mimms, 2,340 ft. N and W SE cor. Sec. 3, Blk. W, T.&P. Sur.	Spudded and shut down.
Lipan Oil Co.'s No. 1 E. C. Rawlings, Sec. 390, Blk. 1-A, H.&T.C. Sur., elev. 2,750 ft.	Cleaning out 2,840 ft.
Mid-Kansas Oil Co.'s No. 1 W. E. Lackey, 330 ft. N and E of SW cor. Sec. 272, Blk. 1-A, H.&T.C.	Pay 3,755-56 ft.; 6⅝-in. casing set 3,451 ft.; fishing at 3,755 ft.
Ray E. McCamey et al's No. 1 McCutchen, 2,300 ft. S and 785 ft. W of NE cor. of T. J. Hines Sur. No. 4	Shut down 1,640 ft.
CONCHO COUNTY	
Duffy et al's No. 1 Gilliam, 1,520 ft. N and 1,120 ft. W of SE cor. Sec. 21, Blk. 10, H.&T.C.R.R.	Rigged up.
Fred Spratt's No. 1 Bryson, Sec. 30, 150 ft. from N and W cor.	Location.
Jones & Leiner's No. 1 Jones, 420 ft. S and 15 ft. E of NW cor. John G. Reh Sur. No. 1,878	Drlg. 1,260 ft.

(Continued on Page 114)



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OKLAHOMA FIELDS

(Continued from Page 43)

with nothing showing and was drilling ahead at 6,153 feet.

The production of the discovery well, the Indian Territory Illuminating Oil Co.'s No. 1 fee, C SE SE, Section 24-11-3w, Oklahoma County, was 2,620 bbls. of oil and 479 bbls. of water on Monday, May 27.

Reiter-Foster Oil Co.'s No. 1 Watkins, C SW SE, Section 5-19-1w, Payne County, has been drilled to a total depth of 4,847 feet in Viola Lime. It has been producing about 250 bbls. a day from what may be the Misener sand at 4,837-41 feet. The drillers apparently did not find any Sylvan or Hunton.

One of the largest wells completed in the Mission Pool and the largest one on its lease is the Gypsy Oil Co.'s No. 8 Barkus, NW cor. SE SW, Section 6-8-6, Seminole County. The oil is coming from the Wilcox sand at a total depth of 4,-192 feet. The best day's production was 4,110 bbls.

The third well due in the Asher Pool is the Tom Slick Oil Co.'s No. 1 Bledsoe, NW cor. SW NW, Section 20-6-4, Pottawatomie County, in which 8-inch pipe was cemented at 3,635 feet, and the crew was drilling ahead at 3,640 feet.

Production from the Simms Oil Co.'s No. 1 Laster, SE NE NE, Section 19-6-4, Asher Pool, Pottawatomie County, has declined about 500 bbls. a day since the completion of the offset well. The gauge on Monday of this week was 3,280 bbls. in 24 hours, at a total depth of 3,-699 feet. Prairie Oil & Gas Co.'s No. 1 Laster, NE cor. SE NE, Section 19-6-4, the first offset, was 1,935 bbls. on Monday's gauge at a total depth of 3,679 feet.

New Locations in Seminole Area

New locations in the Seminole area are in the increase, a list of recent ones follow: Gypsy Oil Co.'s No. 2 Green, SW cor. NW SE, Section 17-7-4, Pottawatomie County; Tom Slick Oil Co.'s No. 1 Latimer, NW cor. SW SW, Section 16-7-4, on acreage recently purchased from the White Eagle Oil & Refining Co.; Houston Oil Co.'s No. 2 Wyatt, NW Co. NE SW, Section 17-7-4; same company's No. 3 Wyatt, NE cor. SW, Section 17-7-4; Denver Oil & Refining Co.'s No. 1 Cully, SW cor. SE SW, Section 27-7-5; Prairie Oil & Gas Co.'s No. 2 Thomas, SE cor. NW, Section 5-7-7, Seminole County; Marquette Oil Co.'s No. 1, NE cor., Section 36-8-4, Pottawatomie County; W. B. Pine's No. 2 Smith, SE cor. SW NE, Section 8-8-5, Pottawatomie County and W. B. Pine's No. 3 Harjo, NW cor. SW SE, Section 6-8-6, Seminole County.

Healdton Oil & Gas Co.'s No. 1 Gragg, Section 29-18-4w, Logan County, had the top of the Viola lime at 6,748 feet and is drilling in it at 6,774 feet. The well averaged 106 bbls. daily for the past week from the Hunton lime.

Benedum & Trees are building a rig for No. 1 in the NE cor. SE, Section 31-5-5, Pontotoc County, in the Beebe Pool.

Caddo County

Abernathy & Brown's No. 1 Horton, SE cor., Section 8-6-13w, is drilling at 250 feet. Oklahoma Gas Utilities Corp.'s No. 2-A Williams, NE cor. SW SW, Section 11-4-8w, is rigging up to deepen from 2,607 feet. English Drilling Co.'s No. 1 Williams, SE cor. NE, Section 3-5-9w, has been completed for 7,500,000 feet of gas in sand 1,876-2,424 feet.

Carter County

Shell Petroleum Corp.'s No. 1 Johnson, SE cor. NW SW, Section 18-4s-1w, is dry and abandoned at 3,844 feet.

Cotton County

Hedrick and others' rig is up for No. 1 Bull, SW cor. SE, Section 3-1s-10w. Cullum & Perkins' No. 6 Priddy, SE cor. NE NE, Section 3-2s-10w, is rigging up. E. J. Stump's No. 1 Jones, NW cor. NE, Section 11-3s-10w, has been abandoned at 2,513 feet.

Creek County

McCulloch Oil Co. made location for No. 1 Davis, NW cor., Section 21-19-9. Glen Evans and others made location for No. 1 Oglesby, SW cor., Section 30-19-9. Gled Oil Co. made location for No. 1 Gilreath, NE cor. NW SW, Section 31-19-9. Jackson & Wise has the rig on the ground for No. 1 Oglesby, SE cor. NE SE, Section 14-18-8. Apex Oil & Gas Co.'s No. 2 Fife, NE cor. SW SW, Section 28-18-11 is making 30 bbls. from sand 1,613-25 feet. Jackson & Wise made location for No. 1 Taylor, SE cor. NW, Section 3-17-10. The Prairie Oil & Gas Co. made location for No. 3 McMahon, SE cor. NE NW, Section 10-17-9. H. U. Bartlett and others' No. 3-B Bartlett, NE cor. NW NE, Section 18-19-9, was completed for 1,250,000 feet of gas in sand 2,103-17 feet. Evans Brothers' No. 1-A Evans, NW cor. SE, Section 31-19-9, has been completed for 2,000,000 feet of gas in sand 2,467-97 feet after plugging back from 2,570 feet. Gled Oil Co.'s No. 1-A Cares, CNL NE SW, Section 31-19-9, made 50 bbls. at 3,143 feet. Markham Oil Co.'s No. 7 Beesley, NE cor. SE NW, Section 20-17-7, is dry and abandoned at 3,320 feet. Curtis Oil Co.'s No. 1-M Tiger, SE cor., Section 3-17-8, is a dry hole at 3,533 feet. Whitten & Wilcox's No. 5 Koch, SW cor. SE SW NE, Section 11-17-10, made 5 bbls. from sand 2,014-16 feet. Jackson & Wise's No. 2 Frank, NW cor. SW SW, Section 1-17-11, is dry and abandoned at 1,584 feet. Wilcox Oil & Gas Co.'s No. 8 Harjo, SW cor. SE SW, Section 35-16-8, has been abandoned at 3,200 feet. William Sherry's No. 1 Sinclair, NW cor. NE NW NE, Section 1-16-11, is dry and abandoned at 2,694 feet. C. G. Tibbens' No. 41 Connessenny, SW cor. NW SW NE, Section 30-15-9, made 2 bbls. in sand 1,240-90 feet. Edgewood Oil Co.'s No. 5 Johnson, NW cor. SE SW, Section 17-14-10, has been abandoned at 3,797 feet. Billingslee & Riverland Oil Co.'s No. 1 Harjo, NE cor. SE NW, Section 28-14-10, is dry and abandoned at 3,390 feet.

The Prairie Oil & Gas Co.'s No. 4 Roberts, SW cor. SE SE, Section 7-16-

(Continued on Page 133)

ROCKY MOUNTAIN AREA

(Continued from Page 47)

In Sweetwater County, the Ensign Oil Co. of Salt Lake City has made a location in the SW SE Section 7-13-99, on the Alkali Creek Dome, three-fourths mile northwest of the Mountain Fuel Supply Co.'s No. 1 Tucker, shut down at 2,490 feet. The Mountain Fuel Supply Co.'s No. 1 Otto Arnold, NE Section 24-19-104, Middle Baxter Basin, is drilling at 2,490 feet after casing off a stray water sand just above this depth. The hole is believed to be just on top of the Dakota and is preparing to drill in. Same company's No. 1 Humphreys, SW NE Section 2-12-101, Canon Creek Dome, is fishing for tools at 3,550 feet, and its No. 1 Newberry, SE cor. Section 13-12-100, Hiawatha Dome, is pulling casing at 1,300 feet. Same company's No. 1 Murphy, Section 26-17-104, South Baxter Basin, is rigging up, and its No. 1 Hay, Section 26-17-104, is spudding in new hole after skidding rig. The Prairie Oil & Gas Co.'s No. 74-A, Section 11-26-90, Lost Soldier district, is drilling at 1,501 feet in sandy shale, and its No. 47-A, same section, is plugging back to 2,174 feet. The Producers & Refiners' No. 1, NE SE Section 26-20-104, North Baxter Basin, joint with Marland Oil Co., is drilling out cement after setting the 6¼-inch at 3,522 feet.

In Uinta County, the California Co.'s No. 1 Union Pacific, NE NW Section 7-17-116, Muddy Creek Dome, is bottomed at 3,182 feet and drilling out bridge and cleaning out. Same company's No. 1 Wyss, NE SW Section 12-32-115, South Cottonwood, Sublet County, is drilling at 1,879 feet in dark limy shale. The Midwest Refining Co.'s No. 1 Waterfall, SE SW Section 35-22-115, Lincoln County, is drilling at 3,010 feet in red sandy shale.

MONTANA

In the Pondera Field, the Midwest Refining Co. brought in the best well yet found there. The new producer is No. 34 on the Jones lease, Section 9-27-4, and made a total of 90 bbls. per hour over a 10-hour test period. The well is expected to make 350 bbls. daily.

Only one completion was reported from Sunburst, the Ogden, Kevin well, No. 5 Zachor, on Section 20-35-1, that came in with a showing at 1,536 feet and shot. It is expected to make an average producer.

Glass Brothers, drilling a wildcat near Big Timber, Sweetgrass County, found a showing of light oil and have shut down for equipment to make a test. This well is many miles from any production.

ROCKY MOUNTAIN FIELDS
Daily Average Pipe Line Runs Week Ending May 25

WYOMING	
Salt Creek	22,100
Frannie	30
Big Muddy	2,290
Oregon Basin	3,240
Byron	20
Dutton	....
Elk Basin	870
Ferris	30
Grass Creek	2,300
Greybull	20
Hamilton	1,000
LaBarge	1,770
Lance Creek	270
Lost Soldier	3,038
Osage	620
Poison Spider	950
Rock River	2,460
Rex Lake	140
Lander	140
Simpson Ridge	50
Teapot Dome	40
Total	51,378
MONTANA	
Cat Creek	1,420
Kevin-Sunburst	6,860
Pondera	3,100
Lake Basin	90
Total	11,470
COLORADO	
Moffat	1,642
Fort Collins	2,413
Florence	953
Iles	1,884
Tow Creek	564
Boulder	25
Rangely	100
Total	7,581
NEW MEXICO	
Artesia	921
Cap Rock (Maljamar)	493
Hogback	340
Rattlesnake	789
Table Mesa	....
Total	2,453
Grand total	72,882

MICHIGAN FIELDS

(Continued from Page 50)

NE NE Section 11-10-17, made 250 bbls. initial at 2,067-70 feet.

Nelson & Witt, Inc., furnished a surprise when they brought in No. 1 C. Clowar, NW NW Section 13-10-17, at 2,602-68 feet with an initial flow estimated at 150 to 200 bbls. Just a short distance south and east, A. S. Cochran got a dry hole in No. 1 C. Clowar, also NW NW Section 13-10-17, Laketon Township, at 2,063 feet, or 20 feet in.

The Royal Oil Co. brought in the only new upper Traverse producer in Laketon Township, No. 1 Albert Young, SE NE Section 12-10-17, which made 200 bbls. initial.

Muskegon Township

The Muskegon Oil Corp.'s No. 2 Stanley Daniloff, SW SW Section 5-10-16, was the largest well completed in Muskegon Township last week. It came in with an initial flow of 20 bbls. an hour at 2,022-28 feet. The well is beaned back to 15 bbls. an hour.

Mrs. Nellie Mitchell's No. 1 Conrad Nelson, SE SW Section 7-10-16, near the south edge of Dundee production, made about 100 bbls. initial on the pump.

Continental Motors Corp. finally completed its No. 11 fee, NE NW Section 22-10-16, 2 miles southeast of the field, and moved over to No. 12 fee. No. 11 fee made about 10 bbls. a day initial at 2,087-90 feet.

The Lima Oil Corp.'s No. 1 Margaret Figge, SE NW, Section 9-10-16, the first large upper Traverse gasser, was drilled to the lower Traverse and completed again as a 6,000,000-foot dry gasser, the same as it had been in the upper pay.

Harry Harper's No. 1 E. Bragg, SW NE, Section 15-10-16, is good for about 8 or 10 bbls. a day in the upper Traverse at 1,744 feet.

Bradley and Bradley completed No. 1 Harley Smith as a dry hole.

New Locations

Of the 12 new locations, 5 are for wells in the older Muskegon Township area and 7 in Laketon Township where the greatest production has been obtained in the Dundee. All of the five new Muskegon Township locations are in the Dundee territory west of M-20 and in Section 6 and 8: Shoup Oil & Gas Co.'s No. 5 George H. Shoup, NW NW, Section 8-10-16; Swastika Oil & Gas Co.'s Nos. 3 and 4 Charles I. Giles, SE SE, Section 6-10-16, and Swastika Oil & Gas Co.'s Nos. 2 and 3 Martin Berkema, NW NW, Section 8-10-16.

In Laketon Township, Marie-Caswell-Kidder, trustees, made new locations for No. 4 H. Shuler estate, NE NW, Section 12-10-17, and No. 5 H. Shuler estate, NW NE, Section 12-10-17; Dixie Oil Co. for No. 3-D J. D. Ross, SE NW, Section 12-10-17, and the Johnson Oil Refining Co. for No. 3 Frank Cihak, NE NE, Section 12-10-17, and No. 2 Mrs. Edward King, SE NW, Section 11-10-17; and Witt and Wyant for No. 1 A. Fenner, NW SE, Section 11-10-17.

H. H. Cornelius and Howard Brown, of Grand Rapids, will drill No. 2 A. Young, SE NE, Section 12-10-17, to the Dundee after getting a good upper Traverse producer.

The Hervey-Bolema Syndicate's No. 1 F. A. Gritzner, SW NE, Section 17-11-15, one of the only two active wildcat tests in Muskegon County, was dry in the upper Traverse and reached the casing point just above the Dundee.

The White River Oil Corp.'s No. 1 Daniel MacDonald, NE NW, Section 29-12-17, Montague Township, topped the Dundee at 2,057 feet but had difficulty getting a water shutoff. Formations are higher in the dry test, three-quarters of a mile east.

Western Michigan Wildcats

Prather and Stacey's No. 1 Stacey, SE NE, Section 11-11-14, Bridgeton Township, Newaygo County, topped the Traverse at 2,110 feet and had salt water at 2,143 feet. It may be drilled to the Dundee.

Melrose Oil & Gas Co.'s No. 1 Woodward and Hatch, SE SE, Section 5-12-12, Brooks Township, Newaygo County, was 80 feet in the Dundee at 2,910 feet with no show.

Two new locations were made in Newaygo County: Oceana Oil Corp.'s No. 1 Samuel Stitt, SE SE Section 28-15-14, Beaver Township, and Fleeger-Ohlson Association's No. 1 Augusta Plater, SW SW Section 19-14-14, Denver Township.

Mount Pleasant

With 26 active wells, three new locations a considerable distance from production, the Mount Pleasant Field of Midland and Isabella Counties is threatening to equal or exceed the Muskegon Field in development.

Two wells of the Sias Oil & Gas Co., one on an outlying lease and one nearer present production, are within a few days of completion in the Dundee.

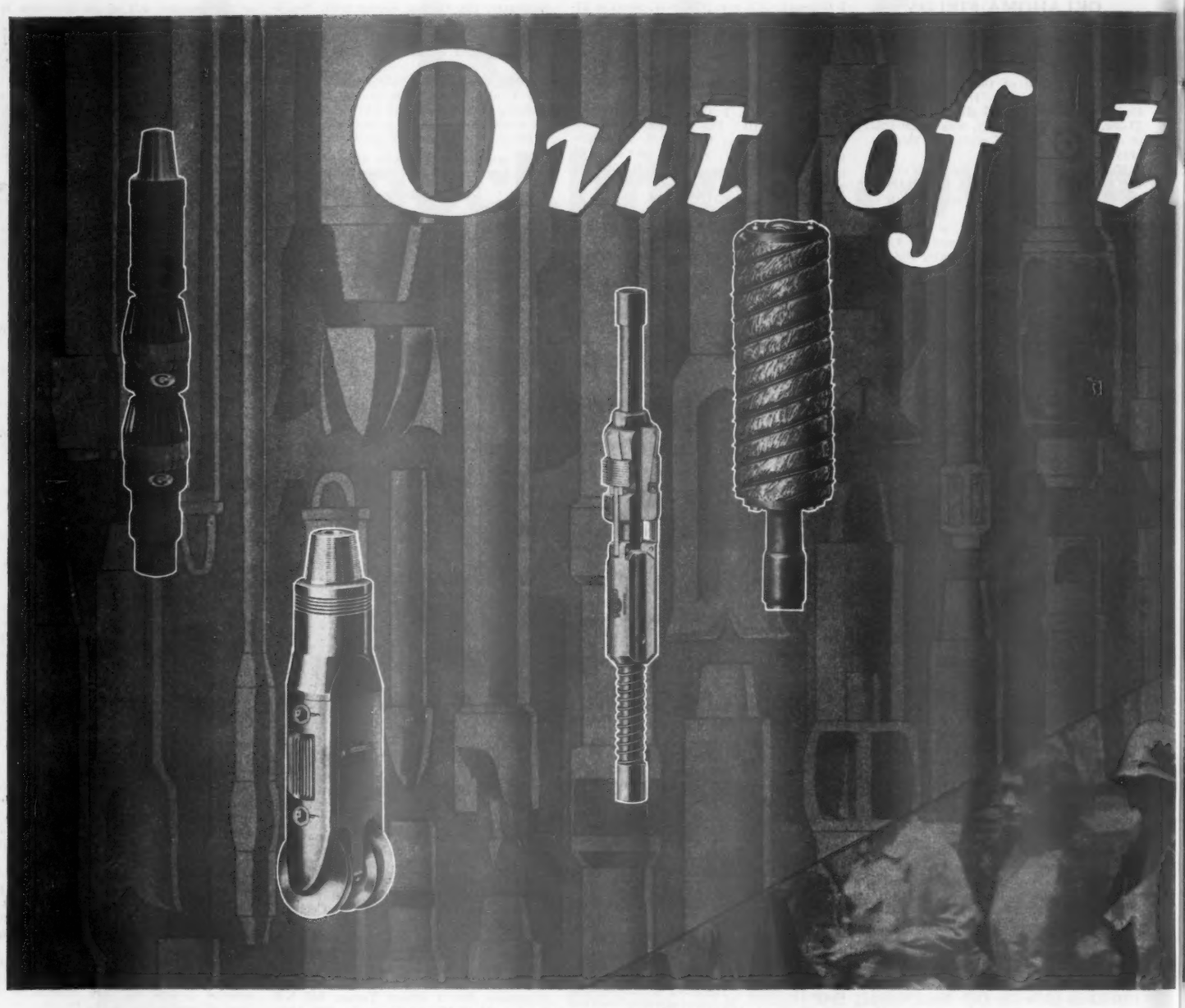
The Wittmer and Athens oil companies have moved in a rig in Section 5, Coe Township, Isabella County, several miles south of present production. L. L. Beal and Tope Brothers are rigging up for No. 1 Campbell, Section 11, Wise Township, about 12 miles north of the heart of the field. The Pure Oil Co.'s No. 1 Consumers Power Co., NE NE Section 20-14-2, Greendale Township, Midland County, is drilling at 4,350 feet, the deepest test in the field.

The Pure Oil Co. is rigging, spudding or driving pipe on seven of its 13 locations. Ridenour and Lang are rigging up for their No. 1 Shepherd, Section 23-14-3. Chippewa Oil Co.'s No. 3 Joslin, SE SW Section 12-14-3, has landed drive pipe at 335 feet. Athens Oil & Gas Co.'s No. 1 S. H. Smith, NE SE Section 14-14-3, is spudding.

J. C. Arthurs is moving in and rigging up on the 40-acre tract of Indian land, NW NE Section 13-14-3, Chippewa Township, Isabella County.

Deep Tests Planned

Two deep tests of the Monroe and Niagara formations believed to lie at less than 3,500 feet in or near the proven area of the Muskegon Field are now being planned. Holes that were dry to the Dundee, one just east of production in Muskegon Township and the other west of the proven territory in Laketon Township, will be drilled from 1,000 to 1,500 feet deeper if plans are successful. A



SWAB
CATCHER
UNDERREAMER
DISC BIT

CONTROL HEAD PACKER
TUBING OIL SAVER
SPIRAL PLUGS
SPIRAL PACKERS
TOOL JOINT TONGS

CASING OIL SAVER
CASING TONG
TUBING STRIPPER
SUCKER ROD SOCKET

GUIBERSON

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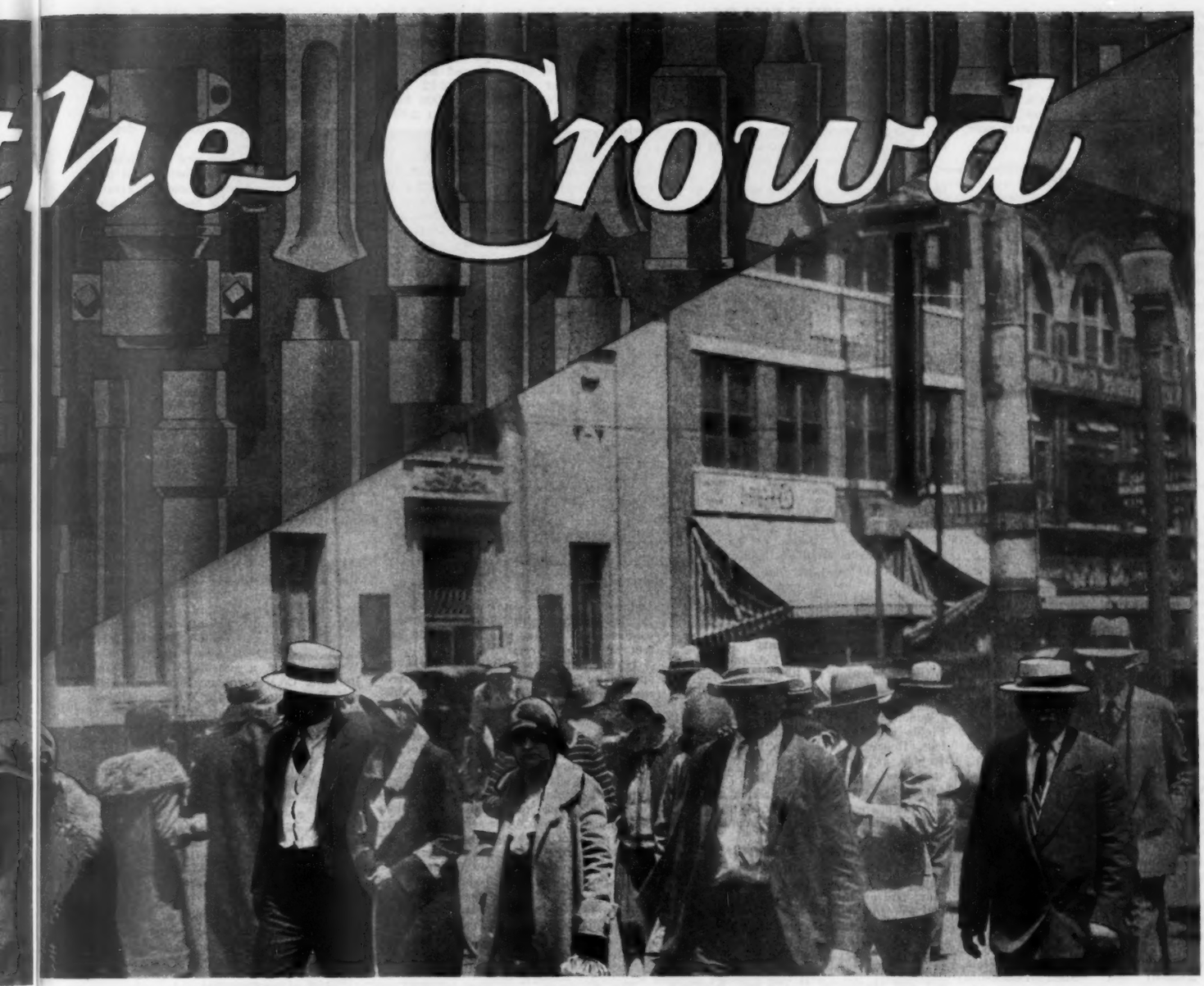

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new standard derrick already has been erected over the Great Western Oil & Gas Co.'s No. 1 Cecil F. Warren duster, SE NW Section 4-10-16, on the north side of M-20, northeast of the salt water area in Muskegon Township. The other is the Johnson Oil Refining Co.'s No. 1 Kate Sovacool, SW SE Section 2-10-17, Laketon Township, about a quarter mile northwest of production.

KANSAS FIELDS

(Continued from Page 44)

Chautauqua County

Griffith & Bell's No. 1 Curran, NE cor., Section 12-32-10, is dry and abandoned at 3,043 feet. Edward G. Borge's No. 1 McKeown, SW cor. NE SE, Section 31-32-10, drilled to 2,447 feet, plugged back to 1,670 feet and made 25 bbls. The Prairie Oil & Gas Co.'s No. 2 Townsend, C NW SE, Section 20-34-9, has been abandoned at 2,166 feet.

Coffey County

McCulloch and others' No. 1 Hutchinson, SW cor. SE NW, Section 18-23-16, is dry and abandoned at 1,490 feet. Sheedy and others' No. 1 Niver, SW cor. SE SE, Section 6-22-14, has been abandoned at 1,833 feet. Union Gas Co.'s No. 1 Rogers, SW cor. NW, Section 9-22-14, has been abandoned at 1,600 feet.

Cowley County

The Prairie Oil & Gas Co. is erecting the rig for No. 3 Mitschler, SW cor. SE SE, Section 9-32-4. Hall Jones and others' No. 1 Manley, NE cor. NW SE, Section 20-30-6, is dry and abandoned at 3,358 feet. Trees Oil Co.'s No. 6 Smith, SW cor. SE, Section 10-31-3, made a 30-bbl. well in sand 3,062-79 feet. Shawver and others' No. 1 Morgan, NW cor. NE, Section 15-31-3, was completed for 50 bbls. in sand 3,076-82 feet. No. 1 Vaught, SW cor., Section 24-31-3, is a dry hole at 3,400 feet.

Greenwood County

The Texas Company made location for No. 1 Barnard, SE cor. SW NW, Section 6-23-10. Transcontinental Oil Co. made location for No. 1 Cook, SE cor. NE, Section 15-24-10. Roth & Faurot's No. 1-C Welsh, NE cor. SE SE, Section 13-25-8, is spudding. The Prairie Oil & Gas Co. made location for No. 2 Brown, NE cor. SE NW, Section 11-22-10.

Lyons County

Statts & Spencer made location for No. 1 Milner, SW cor., Section 33-21-11.

Marion County

Shell Petroleum Corp. is erecting the rig for No. 1 Rample, NE cor. SE SE, Section 12-19-2. Empire Oil & Refining Co.'s No. 2 Suderman, NE cor. SE NE, Section 12-19-2, made 25 bbls. in Viola lime 2,823-61 feet. Shell Petroleum Corp.'s No. 1 Suderman, SE cor. NE NE, Section 12-19-2, made a 35-bbl. well in Viola lime 2,818-33 feet.

Russell County

The Texas Company's No. 1 Leonard, NW cor., Section 6-13-15w, has been completed for 55 bbls. in sand 2,996-3,016 feet.

Sedgwick County

Tidal Oil Co. has the rig on the ground for No. 1 Duncan, SW cor. SE, Section 31-25-1. Bu-Vi-Bar Petroleum Corp. and others' No. 1 Reed, SE cor., Section 1-26-1w, Valley Center Pool is drilling at 765 feet. Skelly Oil Co. & Davis and others' No. 8 Wilson, SE cor. SW NE, Section 1-26-1w, is drilling at 1,890 feet. Whittaker and others' No. 1 Cantrell, SW cor. NE SW NE, Section 36-25-1w, has been abandoned at 750 feet. Jones & Kirk's No. 1 Sherman, SE cor. NE, Section 4-25-1, is dry and abandoned at 3,500 feet. Bu-Vi-Bar Petroleum Corp. and others' No. 6 Bright "A," SE cor. NW, Section 6-21-1, made 85 bbls. from sand 3,379-84 feet. Montour Oil Co.'s No. 2 Lavender, SE cor. SW, Section 6-26-1, made 1,187 bbls. from sand 3,379-85 feet.

Smith County

Phillips Petroleum Co. made location for No. 1 Clydesdale, SE cor. NW, Section 23-5-14w.

Wilson County

The Prairie Oil & Gas Co.'s No. 2 Hyde, NW cor. NE SE, Section 33-29-16, was completed for 92,000 feet of gas in shale 662-66 feet.

PANHANDLE FIELDS

(Continued from Page 65)

feet. Hart & Cole, Inc., No. 1 Johnson made 336,000 feet of gas at 1,717 feet. Janellen Oil Co.'s No. 1 Huggins had an initial production of 1,500,000 feet of gas at 1,203-25 feet and was drilled to a total depth of 1,291 feet. Lamb's No. 1 Gwathney was dry and abndoned at 1,925 feet.

Comanche County

Welsh and others' No. 1 Cozley was temporarily abandoned at 2,968 feet.

Coleman County

Barbree & Ross' No. 1 Farmer was temporarily abandoned at 1,750 feet. Canyon Oil & Gas Co.'s No. 1 Baker was dry and abandoned at 940 feet. Jackson & Veihl's No. 1 Davis was dry and abandoned at 3,330 feet. Prairie Oil & Gas Co.'s No. 2 Reaves was drilled to a total depth of 1,366 feet and had an initial production of 1,000,000 feet of gas and 15 bbls. oil. Stepp & Keister's No. 3 Shore had an initial production of 2,500,000 feet of gas at 783-97 feet. Sterling Oil Co. & Ross' No. 1 Weir was dry and abandoned at 2,292 feet. Westbrook Oil Corp.'s No. 1 Westbrook made 25 bbls. oil and 25 bbls. water at 1,940 feet.

Callahan County

Blackwell and others' No. 1 Eubanks was dry and abandoned at 1,020 feet. Bradstreet & Holden's No. 1 Swafford had an initial production of 100 bbls. at 1,659-66 feet. Breman's No. 1 Hall was dry and abandoned at 1,240 feet. Duffey & Ewmo Oil Co.'s No. 1 was dry and abandoned at 1,802 feet. Moutray Oil Co.'s No. 2 Finley-C made 1,660,000 feet of gas at 361-374½ feet. Starr & McDowell's No. 1 Jones was dry and abandoned at 1,557 feet.

Eastland County

Garrett & Moore's No. 1 Adams had an initial production of 40 bbls. oil and 65 bbls. water at 3,563-73 feet. Goodwin and others' No. 1 Hazzard was dry and abandoned at 3,715 feet. Garver's No. 1 Fields was dry and abandoned at 2,802 feet. Root and others' No. 2 Noble made 40 bbls. at 3,559-3,600 feet.

McCulloch County

Duffy & Silk's No. 1 Frerich was dry and abandoned at 603 feet. White's No. 1 White was dry and abandoned at 1,000 feet.

Palo Pinto County

Shaw's No. 1 Chestnut was dry and abandoned at 5,123 feet. Wickens' No. 1 Hart had an initial production of 1,200,000 feet gas at 2,987-3,000 feet.

Shackelford County

Combest Oil Co.'s No. 2 Matthews was dry and abandoned at 1,079 feet; Hughes and others' No. 1 Elliott was dry and abandoned at 715 feet. Knight's No. 1 Reynolds was dry and abandoned at 1,250 feet. Ohio-Texas Oil Co.'s No. 3 Matthews made an initial production of 150 bbls. at 1,134-49 feet.

Stephens County

Pace & Ward and others' No. 3 Norton had an initial production of 4,000,000 feet of gas at 3,220-3,316 feet. Cooper & Caprito's No. 1 Compton was dry and abandoned at 3,925 feet. Lawton and others' No. 1 McCleskey was dry and abandoned at 2,167 feet. The Texas Company's No. 4 Wilson was dry and abandoned at 3,363 feet.

PANHANDLE COMPLETIONS
Week Ended May 25
Gray County

Magnolia Petroleum Co.'s No. 4 Bowers, located 330 feet south and 270 feet east of NW cor. Section 63, Block B-2, H&G.N.R.R. Survey, was drilled to a total depth of 2,970 feet, flowed 9,725 bbls. first 24 hours from granite wash and made 10,000,000 feet of gas with oil. Marland Oil Co.'s No. 2 Finley-Brown was drilled to a total depth of 2,875 feet, flowed 950 bbls. from granite wash at 2,856-63 feet. Was deepened 12 feet and the gas settles from 20,000,000 feet to 9,000,000 feet. Phillips Petroleum Corp.'s No. 1 Palmer was drilled to a total depth of 2,816 feet and made 1,350 bbls. in 24 hours with 8,000,000 feet of gas. This well is located 330 feet north and west SE cor. Section 31, Block B-2, H&G.N.R.R. Survey. The Shamrock Oil Co.'s No. 2 Chapman-A, located 990 feet east and 330 feet from S lines S half SW Section 70, Block 25, H.&G.N.R.R. Survey, was dry and abandoned at 2,916 feet. The Texas Company's No. 1 Faulkner flowed 1,600 bbls. oil and made 6,000,000 feet of gas at 2,802-12 feet. Their No. 2 Faulkner made 9,000 bbls. oil with 29,000,000 feet of gas at 2,855-65 feet.

Hartley County

Canadian River Gas Co.'s No. 10 Burns-A, located 660 feet north and 660 feet east Section 18, Block 2, G.&M.R.R. Survey, made 2,000,000 feet of gas at the sand found at 3,290-3,440 feet and was drilled to a total depth of 3,660 feet.

Hutchinson County

Gulf Production Co.'s No. 45 Dial, located 660 ft. south and west of NE cor. S half Section 25, Block 47, H.&T.C. R.R. Survey, made 175 bbls. in 45 hours at 2,678-2,800 feet. Their No. 44 Dial made 147 bbls. in 12 hours at 3,076 feet. This well is located 330 feet north and 325 feet west NE cor. Section 36, Block M-23, T.C.R.R. Survey.

King County

The Texas Company's No. 1 Johnson was dry and abandoned at 4,300 feet.

Wheeler County

Mudge Oil Co.'s No. 2 Hicks, located C SE NW Section 52, Block 17, H.& G.N.R.R. Survey, had an initial production of 31,000,000 feet of gas at 1,738-1,898 feet.

NEW SHALLOW OIL FIELD IN CALIFORNIA

(Continued from Page 32)

and early work is contemplated. Robert Bowles will probably also get busy immediately as he has two lots within 150 feet of the discovery.

If the new Santa Barbara Field responds to development work this field may be doing 15,000 or 20,000 bbls. per day before the close of July unless curtailed. There is very little possibility that production will be reduced to any appreciable extent in the immediate future because of its proximity to the city of Santa Barbara, where a normal market exists for surplus natural gas which up to the present has been piped in from other sections. Early work will not be adversely affected by the recently enacted gas conservation law unless subsequent completions show a substantially larger production of natural gas. The discovery well is flowing 800,000 feet of natural gas daily which tests indicate has a theoretical natural gasoline content of a little less than 2 gallons for each 1,000 feet of wet gas.

Kettleman Hills Situation

The discovery of a new oil field at Santa Barbara and the failure of operators at Kettleman Hills to accomplish anything tangible with respect to projected curtailment in the latter area complicates the local situation and makes crude oil curtailment in California more imperative than ever. Kettleman Hills has not yet become a factor in state production but this field will become a very serious menace if development work continues unabated. Operators holding acreage in this field are willing to curtail drilling operations and may even suspend work indefinitely in a friendly spirit of co-operation, provided independent producers in other districts comply with the provisions of Umpire van Deinse's curtailment orders. Every major company in California, which includes the Standard, Union, Shell, General Petroleum, Richfield, Associated and The Texas Company, has complied with all curtailment orders as far as possible and while a number of independents have also fallen into line a large number are still holding out. If these holdouts persist state production cannot possibly be reduced to the established maximum of 650,000 bbls. per day unless the gas conservation law accomplishes the desired result.

It is not logical to expect Kettleman Hills operators to suspend work or curtail drilling operations as long as independent producers in other fields continue to ignore the concerted attempt of progressive companies to reduce production. There are 25 string of tools in operation at Kettleman Hills and a check indicates this field may be doing well in excess of 50,000 bbls. per day before the current year ends. It does not take any stretch of the imagination to visualize the dominating position of this field, especially since Kettleman Hills crude ranges above 60 degrees gravity.

The discovery of a new oil field at Santa Barbara and the phenomenal performance of the Elwood Field has greatly stimulated interest in the coastal area comprising Ventura, Santa Barbara and San Luis Obispo Counties and it is a foregone conclusion that considerable exploration work will be undertaken in this section all during the year. The Standard has become especially active in the coastal region during the past few months and will undoubtedly continue to engage in extensive wildcat exploration for some time. The company is running two strings of tools in Santa Barbara County, having one wildcat under way 11 miles northwest of Lompoc and another at Point Conception. In Ventura County the Standard has been prospecting in and around Saticoy. The Union is also quite active in the coastal region, drilling two wildcats in the Huasna area of San Luis Obispo County, one in Monterey County near San Lucas and another in Santa Barbara County located some 15 miles east of the Lompoc Field. The Shell's prospecting activities include three wildcats in Santa Barbara County, one at Guadalupe, a second near Goleta and another near the old Summerland Field. This company also has a prospect hole under way in the Simi district of Ventura County and another under way near Dudley in Monterey County. The Midwest Refining Co., Western Gulf, a subsidiary of the Gulf Refining Co., Petroleum Securities, General Petroleum, Pacific Western, George F. Getty, Continental and a number of other progressive operators are also prospecting in the coastal area and may open up a new field at any time.

The state administration is apparently holding up the recently enacted gas conservation law in order to give all operators ample opportunity mutually to correct existing overproduction before passing it on to the State Oil and Gas Department for application.

This measure will reduce production in all flush areas, especially Santa Fe Springs, Elwood, Long Beach and Ventura Avenue. The situation at Kettleman Hills is a rather embarrassing one and presents an exceedingly difficult problem because of the enormous high pressures encountered as this renders the pinching in of these wells a rather hazardous undertaking.

NATURAL GASOLINE MEN ELECT LEDERER

(Continued from Page 32)

addition to its natural gasoline plants the company operates two refineries.

Emby Kaye and A. J. Schlosser, both of Tulsa, are new vice presidents of the association. Mr. Kaye is general superintendent of the Skelly natural gasoline plants and Mr. Schlosser holds the same position with the Barnsdall Oil Co. Both have been connected with gasoline plant operations for several years. George L. Ratcliffe, manager of the gas department of the General Petroleum Corp., Los Angeles, was re-elected a vice president of the association. Mr. Ratcliffe also is president of the California Natural Gasoline Association.

At a meeting of the board of directors, Ray E. Miller was re-elected secretary and treasurer of the association. Mr. Miller became the active head of the association early in the year and board members have expressed themselves as pleased with the manner in which he has conducted association affairs.

No definite action has been taken relative to the association's research program for the coming year. Dr. G. G. Brown of the University of Michigan has completed a three-year program. It is anticipated that the work will be continued through the coming year.

Single reduction unit pumping a well in West Texas, driven by an Allis-Chalmers steel frame oil well motor, complete with control.

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that absorbs all Shocks ...

THIS Texrope driven single reduction unit protects the motor from shocks during pumping or drilling operations. The Texrope Drive, consisting of a number of special V-shaped rubber and fabric belts operating on V-grooved pulleys, absorbs the shocks before they can get to the motor. Texrope Drives are efficient and trouble-proof, requiring very little attention.

The Allis-Chalmers single reduction unit for pumping or drilling consists of a metal base with a detachable Timken equipped countershaft and a Texrope Drive. Universal slide rails permit the use of any size or type of motor.

The unit shown above is driven by an Allis-Chalmers oil well motor. Steel frame, heavy cording of rotor connections and lacing between coil ends, dipping stator and rotor after winding in special insulating varnish and baking which protects windings from moisture, sulphur fumes and field dust and also adds mechanical strength, insure uninterrupted service.

Write your nearest oil field office for detailed information on Allis-Chalmers oil field equipment. Stocks carried at Tulsa, Houston, Sweetwater, and Los Angeles.

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Natural Gas Developments

NATURAL GAS FUNCTION IN OIL PRODUCTION

"Function of Natural Gas in the Production of Oil," by H. C. Miller, senior petroleum engineer of the United States Bureau of Mines, printed by the American Petroleum Institute, is a report of the bureau containing the results of a study of the importance of natural gas in oil production made co-operatively by the institute's Division of Development and Production Engineering and the bureau.

The book represents one result of efforts begun by the institute to increase production efficiency, and includes a compilation of the reports of subcommittees working under the institute's Gas Conservation Committee which began its work at Colorado Springs in September, 1927. It contains numerous maps and charts, results of research work in the Mid-Continent, Rocky Mountain and Pacific Coast Fields, and data findings and conclusions.

In summing up conclusions, Mr. Miller writes it has been found that conservation of gas in the production of oil is of paramount importance. Oil should be produced in such a way as to retain in the sand, throughout the life of the field, the maximum percentage of the original gas energy. Repressuring, it is said, cannot reproduce original conditions. Co-operative development of oil pools is approved.

The volume is in two parts, the first summarizing the opinions of petroleum engineers and describing methods for controlling gas and oil production to gain the greatest ultimate recovery of oil from a field. The second part is a summary of available facts and conclusions concerning properties and action of mixtures of oil and gas in underground formations.

BOWERS POOL PLANT

AMARILLO, Tex., May 25.—Gray County will have the largest carbon black plant in the Panhandle when Cabot Co. completes an addition to its plant in the Bowers Field, 5 miles south of Pampa.

At present the plant is using 33,000,000 feet of residue gas, producing approximately 60,000 pounds of carbon black a day. A fourth unit of 56 smoke houses will be added to the present three units, which will give the plant a capacaity of 44,000,000 feet of residue gas. It will produce 80,000 pounds of carbon black a day. When completed, the new plant will consist of 108 houses, using 24,000,000 feet of residue gas from the Skelly and Empire casinghead plants. It is expected the plant will be in full operation by June 15.

ONTARIO GAS INDUSTRY

CHATHAM, Ontario, May 25.—An important development in connection with the natural and artificial gas industry in southwestern Ontario is the announcement that the United Fuel Investments Co., Ltd., of Hamilton has acquired a large interest in the Union Natural Gas Co. of Canada, with headquarters at Chatham. Arthur F. White, vice president of the United Fuel Investment Co., had been elected a director of the Union company.

About a year ago the United Fuel Investments Co. acquired the holdings in Hamilton of the Hamilton By-Product Coke Ovens, Ltd., and also of the United Gas & Fuel Co., Ltd., including the franchise to supply Hamilton. The Union Natural Gas Co. was originally a merger, effected in 1912, of a number of pipe line companies operating in the three counties of Essex, Kent and Lambton and supplying natural gas from the Tilbury Field. Recently it has acquired all the local distributing companies to which it previously supplied gas, and has spent large sums in improving the distributing and pipe line system. It holds the franchise for Windsor and the other Canadian border cities, and is this year erecting an auxiliary gas plant to supplement its natural gas supply.

The erection of a coke oven gas plant at Windsor may be undertaken. In the Hamilton district, construction work is being commenced on a pipe line along Burlington Beach to Oakville, where the United Fuel Investments Co. recently secured a franchise to supply artificial gas to the towns and townships. The United company has also completed a new dock on Burlington Bay at a cost of $1,000,000.

BETHANY COMPRESSOR STATION

SHREVEPORT, La., May 25.—Dixie Gulf Gas Co. has completed and placed in operation a six unit field compressor station in the Bethany field of Panola County, Texas, south of its Waskom main line station, and made improvements to its gathering system which will increase its daily production by 10,000,000 feet per day from 40 wells.

The plant, built under supervision of Paul Wright, the company's superintendent at Waskom, and H. S. Johnson, of the Hope Engineering Co., was necessitated by declining pressures in the field, and will pick up 25,000,000 feet daily at 75 pounds intake pressure and deliver it at 175 pounds to the Waskom station through a 12-inch line. There it goes through the stripping plant and is turned into the main line to Houston. The equipment consists of six 160-HP Hope compressors and two 40-HP 25 KW Westinghouse generator sets for the auxiliary power and light plant.

OKLAHOMA NATURAL GAS

Oklahoma Natural Gas Corp. reports gross earnings of $10,740,636 for the 12 months ended March 31, 1929, as compared with $10,096,715 for the year ended December 31,1928. Net operating income amounted to $4,461,961, as compared with $4,004,069, an increase of $457,892. Interest paid and accrued on funded debt amounted to $1,438,126 for the 12 months ended March 31, 1929.

COLUMBIAN CARBON

Columbian Carbon Co. and subsidiaries report for quarter ended March 31, 1929, net in come of $1,059.957 after depreciation, depletion and federal taxes, equivalent to $2,32 a share earned on 457,344 shares of no-par stock. This compares with $670,835 or $1,66 a share on 402,131 share in first quarter of 1928.

BORGER CARBON PLANT

BORGER, Tex., May 25.—The Eastern Carbon Black Co. has started operation of two of its four units at the Rock Creek plant, southwest of Borger. The plant, when completed, will burn about 40,000,000 feet of residue gas. It is located on a spur of the Santa Fe Railroad and is a mile south of the Palmer Corp.'s plant. Before July 1 the other units are expected to be in full operation.

HOUSTON GULF GAS EARNINGS

HOUSTON, Tex., May 25.—Net earnings for first quarter of 1929 amounting to $401,444 were announced by the Houston Gulf Gas Co. This does not deduct Federal taxes but is equivalent to earnings of approximately 85 cents a share. Net earnings for the same quarter of 1928 were $455,389.

LONE STAR CELEBRATES WITH EXPANSION PLANS

The Lone Star Gas Co.'s twentieh anniversary next month will be celebrated by starting a large expansion program. The company was organized in 1909 in Fort Worth, Tex. Here it had an office force of about 30 persons and one pipe line 100 miles long. Three men of that original force are still with the company: L. B. Denning, president; D. L. Cobb, treasurer, and Grover C. Reed of Bowie, head of the telephone department.

At that time the company's territory was still raw. Few industries had located in Texas, partly because eastern and northern capitalists had not been interested in the State, but chiefly because it was understood there was no fuel supply. The development of natural gas facilities by the Lone Star Gas Co. has corrected this situation and today no states in the Union surpass Texas and Oklahoma in offering an adequate supply of fuel to prospective industries.

From its small beginning 20 years ago, the company has expanded into a system with 3,400 miles of pipe line serving more than 200 towns and cities in Texas and Oklahoma. It draws gas from more than 21 large fields in these two states.

The company's plans for this summer include more than 200 miles of new pipe line, construction of a large compressor station, rebuilding of a gasoline plant, construction of a 24-mile private telephone line to tie in with its present telephone system of 1,200 miles, and numerous other improvement projects.

MIXING NATURAL GAS MOST ECONOMICAL USE

Gas companies are tending more and more to look upon natural gas as of more value, when mixed with manufactured gas, than when distributed in its pure state, Edward Reynolds, Jr., vice president of the Columbia Gas & Electric Co., states. Mr. Reynolds said it is the intention of the Columbia Gas & Electric Co. to use natural gas solely in this fashion in the near future.

Mr. Reynolds said the mixing of natural gas with manufactured gas was the most economical method discovered so far to give to manufactured gas its required heat units. Pure natural gas has a heating value too great for ordinary industrial and domestic uses and its use in an unmixed form, is a cause of considerable waste.

While natural gas itself is cheap compared with manufactured gas, its continued use in a pure form is likely to hasten the day when the supply will become exhausted, while its expense will increase continually, due to the necessity of having to run pipe lines further and further in order to connect with new wells, Mr. Reynolds said. Naturally utilities are using first the wells located nearest to the site of the greatest demand. The yearly increase in the average length of natural gas pipe lines, already noticeable, is an indication of this trend.

A further economy in the use of mixed natural and manufactured gas will be realized when a future generation will be spared the tremendous expenses of building new gas plants, as the supply of natural gas becomes exhausted, as would be the case if the existing plants were dismantled or allowed to go into desuetude.

The Columbia Gas & Electric Co., said Mr. Reynolds, is proceeding on this principle. It expects soon to be able to offer districts which it has only served with one or the other of the two types of gas a mixed gas, and it is offering to supply other companies possessing gas plants with natural gas.

JOHN J. O'BRIEN HEADS PHILADELPHIA COMPANY

Stockholders of the Philadelphia Co. have elected John J. O'Brien president of the company and Frank R. Phillips a director. It was announced that at the next meeting of the board of directors Mr. Phillips would be elected vice president and general manager. Since the resignation of A. W. Robertson, formerly president of the Philadelphia Co., to become chairman of the board of the Westinghouse Electric & Manufacturing Co. some months ago, the presidency of the Philadelphia Co. has been vacant. Mr. Phillips, who has been vice president and general manager of the Duquesne Light Co. and vice president of the Equitable Gas Co., in his new position becomes chief executive officer of the Philadelphia Co. and subsidiaries. In this capacity it is understood that he will exercise all of the operating duties heretofore devolving upon the president.

John J. O'Brien, the new president of the Philadelphia Co., is president of the Standard Gas & Electric Co., the utility system of which the Pittsburgh companies are a part.

PACIFIC GAS SUBMITS NEW SCHEDULE OF RATES

SAN FRANCISCO, May 25.—In submitting to the California Railroad Commission a new schedule of rates on heating gas to be effective as soon as its $13,000,000 natural gas pipe line from Kettleman Hills to the San Francisco Bay district is completed, the Pacific Gas & Electric Co. estimates the proposed rates will save consumers $1,900,000 a year in comparison with present gas prices. The company will furnish, probably late this year when the pipe line is completed, a mixture of natural gas and manufactured gas of an approximate heating value of 700 B.t.u. in place of the present manufactured gas of 550 B.t.u.

Consumers will require 21.4 per cent less gas to give the same amount of heat, the company states. It is further stated that as consumers increase their use of gas, the proposed rates will result in larger proportionate reductions, as under the company's proposed schedules the cost of additional heat will be lowered by between 30 and 40 per cent.

The company will purchase during the first five years of operation more than 125,000,000,000 feet of natural gas, most of which would otherwise be wasted in the production of oil in the newly discovered Kettleman Hills Field. Utilization of this natural gas will result in a saving of more than 20,000,000 bbls. of oil, valued at present prices at approximately $18,000,000.

AMERICAN NATURAL GAS CORP.

Consolidated income account of American Natural Gas Corp. for the three months ended March 31, 1929, shows gross revenues of $4,634,856, as compared with $3,954,770 for the first quarter of 1928, an increase of $680,086. Gross corporate income before interest, depreciation, depletion, etc., amounted to $2,665,766, as against $2,203,541 for the first three months of 1928, an increase of $462,225.

For the 12 months ended March 31, 1929, gross revenues totaled $10,862,235, as compared with $10,173,735 for the year ended December 31, 1928. Operating expenses, maintenance and taxes aggregated $6,394,457, as against $6,168,718 for the calendar year 1928. Gross corporate income for the 12 months ended March 31 totaled $4,467,778, as compared with $4,005,016 for the year ended December 31, 1928, an increase of $462,762.

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Gas and air are not easy to mix quickly and thoroughly due to the difference in specific gravity, but this is successfully accomplished in the METTLER BURNER, which is designed on the Multi-Unit Multi-Jet principle. Installations made during the last six years in boilers, stills and furnaces of all kinds, developing over 600,000 Boiler H. P. and consuming more than 25,000,000 cubic feet of gas per hour prove conclusively that the Mettler Burner possesses advantages not to be found in any other burner.

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*Trust One Who Has Had Experience

MEN KNOWN IN OILDOM

Norris T. Gilbert

Norris T. Gilbert's entrance into the oil business, in a manner of speaking, was accidental. He was 44 years old when the Middle States Oil Corporation, comprising some 20 companies that had been consolidated by former Governor Charles N. Haskell, of Oklahoma, found itself the subject of a receivership in 1924. Mr. Gilbert was appointed receiver of the Turman Oil and Associated Companies in the eastern district of Oklahoma. The Turman Oil Company was the principal subsidiary of the Middle States company. Similar appointments were made in the western district of Oklahoma, in Kansas, Arkansas and Texas, where the company had properties.

Mr. Gilbert, who had been a banker since his graduation from college, found the affairs of the company in a scrambled condition and he started in to bring order out of chaos. Not one of the constituent companies of the Middle States Oil Corporation had any cash on hand. Management, accounting and operation forthwith were combined in the Tulsa office with a view of eliminating waste. Some excellent properties were involved. About 20 wells were drilled to the second sand in Arkansas. Nine were drilled on 80 acres in Seminole County, and these nine from February 27 to September 1, 1924, produced 2,464,000 barrels of oil.

All claims allowed against the companies have been paid and in addition Mr. Gilbert has accumulated more than $3,000,000 in money and petroleum in his district of the receivership.

Mr. Gilbert was born 49 years ago on a farm near Stillwater, Okla. He was a member of the third class graduated from Oklahoma A. & M. College there. He taught school two years, then entered a bank in Medford, Okla., as bookkeeper. For the next 24 years he followed the banking business. In 1916, he and his former classmate, T. J. Hartman, helped to develop the Producers National Bank of Tulsa. When he was 27, Mr. Gilbert was elected president of the Oklahoma Bankers Association. In 1901 he married Miss Bennie Townsend, of Stillwater. They have two children.

PERSONAL PARAGRAPHS

J. R. Talpey, of Los Angeles, Calif., is in Calgary and Edmonton to inspect recent Alberta oil developments.

* * *

L. J. Daly, of the Denver offices of the Texas Production Company, division superintendent of the Rocky Mountain region, and R B. Leggett, superintendent of operations for the company in Wyoming, made a trip to southwestern Wyoming recently.

W. L. Mackenzie, of the Oil Well Engineering Company, of Stockport, England, is visiting relatives in Petrolia, Ontario.

* * *

H. M. Cosgrove, secretary of the Purchasing Agents Association of Tulsa, who has been ill since February 18, has recovered.

* * *

J. Edgar Pew, president of the Sun Oil Company, Dallas, Tex., and Mrs. Pew, are in California on a combined business and pleasure trip.

* * *

E. J. Sullivan, president of the E. T. Williams Oil Company, spent some time in Basin, Wyo., on business for the Wyoming Gas Company.

* * *

J. H. Langston, chief scout of the Sun Oil Company, Dallas, Tex., made a trip to Russellville, Ark., to see his father who has been quite ill.

* * *

H. Smith Clarke, chief geologist of the Sinclair Oil & Gas Company, Fort Worth, Tex., made a field trip through West Texas and San Antonio districts.

* * *

George H. Jacques, superintendent of production for the Midwest Refining Company, and H. O. Bossart, assistant superintendent, made a trip to Craig, Colo.

* * *

Charles L Reed, of Casper, Wyo., Rocky Mountain representative of the Gypsy Oil Company, is on a scouting trip for his company in Montana and South Dakota.

* * *

Capt. Wallace R. Finney, head of the gas department, and Paul G. Weidner, assistant manager of that department, Midwest Refining Company, made a trip to Elk Basin.

* * *

R. D. Wallace, of the Prairie Oil & Gas Company of Wyoming, was looking after company business in eastern Wyoming during the week. He was accompanied by Mrs. Wallace.

* * *

L. H. Prichard, of the Anderson & Prichard Oil Company, Oklahoma City, Okla., made a trip to Fort Worth, Tex., by plane, going from there to Colorado City, Texas., by train.

* * *

E. T. Williams, formerly president of the E. T. Williams Oil Company, spent a few days in Casper, Wyo., recently. Mr. Williams is drilling a wildcat well in northern Mexico.

* * *

Paul M. Walker has left Casper, Wyo., for Venezuela where he will be employed by the Pan American Petroleum & Transport Company, a subsidiary of the Standard Oil Company of Indiana.

* * *

Emory A. Cook, purchasing agent of the Twin State Oil Company, who has been ill, has returned to work. His assistant, Jack Manes, has been made safety director of the Twin State company.

* * *

E. W. Krampert, geologist, and A. F. Barrett, both of Parco, Wyo., have left for Lusk, Wyo., and vicinity where they were inspecting several oil propositions for the Prairie Oil & Gas Company.

* * *

William F. Buckley, president of the Pantapec Petroleum Corporation recently spent a short vacation at Gallagher Ranch, 25 miles from San Antonio, Tex. He was accompanied by Mrs. Buckley and children.

* * *

Grover Simpson, vice president and general manager of Loffland Brothers of Tulsa, and E. R. Mazey, former field supervisor of the Texas Oil Company of California, recently visited the Wainwright (Albert) Field by airplane.

* * *

A. E. Lidderdale has left Wyoming for St. Paul, Minn., where he joined the president of Spang & Company for a trip through the oil and gas fields of Alberta, Canada. Mr. Lidderdale is the Rocky Mountain representative of Spang & Company.

* * *

W. H. Pape, formerly chief engineer of the Mid-Continent Petroleum Corporation, Tulsa, and more recently in the oil and gas sales department of the Crane Company at Chicago has been placed in charge of the Tulsa branch office. C. B. Sanders has been placed in charge of sales at the Dallas, Tex., office.

Thomas J. Horsley, of Wewoka, Okla., has sailed for Europe on an extended tour, expecting to return September 15.

* * *

Alex Shaw, who has been a member of the force at the electric plant at Midwest, will sail from New York City soon for Aruba where he will be employed in the construction of the new Pan American Petroleum & Transport Company refinery.

* * *

C. B. Hinton, North and West Texas representative for the Williamsport Wire Rope Company, has been transferred to Tulsa where he will make his new home. Mr. Hinton will continue to cover his old territory in Texas in addition to his new responsibilities.

* * *

Dr. C. A. Heiland, professor of geophysics at the Colorado School of Mines, has sailed for Europe on a combined business and pleasure trip. He will also visit scientists and institutions engaged in geophysical research. He expects to return to Golden about the middle of September.

* * *

J. E. Flynn, master gauger of the Prairie Pipe Line Company, who was loaned to the Seminole proration committee during the Seminole percentage work, has returned to the Prairie company's service and has been made gauger in District No. 99, with headquarters at Okmulgee, Okla.

* * *

W. R. Bowden is the new deputy district supervisor for the oil and gas bureau of the State Railroad Commission, stationed at Midland, Tex. He succeeds H. H. Fitzpatrick, who is on an extended leave of absence because of sickness. Mr. Bowden was transferred from Cisco to Midland. He has charge of 18 counties in the Midland area.

* * *

Roderick Burnham, manager of lands of the Union Oil Company of California, accompanied by his wife and daughter and Maj. Frederick R. Burnham, chief of the Burnham Exploration Company, have left Los Angeles for an extended trip to Africa, Australia, Spain, France and England. The party left San Francisco for Capetown, Africa, and will stop off en route at Australia.

* * *

T. B. Haines, for the past 14 years associated with the various Humphreys interests, in Texas and Wyoming, has resigned and will sail from New York on June 5 for N'Changa, North Rhodesia, South Africa, to assume his new duties as superintendent of core drill operations for the Anglo-American Mining Company, in that district. Mr. Haines, for the past two years has been in charge of the West Texas activities of the Humphreys Corporation, and the Northwest Company, with headquarters at Colorado, Tex.

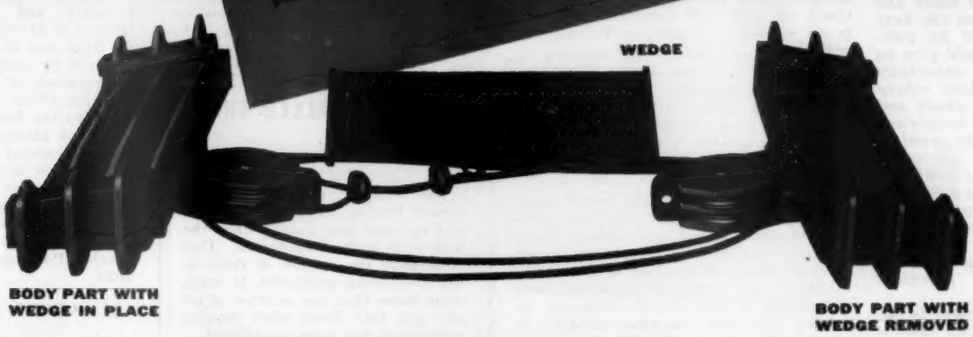
* * *

A party of oil and gas men identified with the Western Public Service Company's natural gas project from the Hiawatha and Baxter Basin districts in Wyoming and Colorado to Central Utah, are making a tour of the western properties in a private car. The party includes George W. Crawford, of Pittsburgh, Pa.; Fred W. Crawford, of Columbus, Ohio; R. J. Berry, vice president of the Ohio Oil Company; T. B. Gregory, of Pittsburgh, Pa.; L. B. Denning, president of the Lone Star Gas Company; H. C. McEldowney, of Pittsburgh, Pa.; and O. D. Donnell, president of the Ohio Oil Company.

* * *

Officials of the Prairie Oil & Gas Company of Independence, Kans., and of its subsidiaries, the Producers & Refiners Corporation, the West Texas Gas Company, and the South Plains Pipe Line Company, made an inspection of the Midland oil field area with W. A. Yeager, district manager of the Prairie company, and H. J. Boisdorf, district manager of the West Texas Gas Company, as hosts. In the group were: L. P. Crawford, president and John Fertig, vice president and general manager of the Producers & Refiners Corporation; R. F. Hinchey, general manager of the West Texas Gas Company; G. A. Woods, general manager of the South Plains Pipe Line Company; R. E. Wertz, vice president; Chief Geologist Beck, and J. L. Yettman, all of the Producers & Refiners Corporation; V. A. Hays, of the Prairie company; J. P. McCloskey and Francis Hann, of the South Plains Pipe Line Company; and W. W. Graves, E. E. Hendricks, George Baird and J. L. Ryan, of the West Texas Gas Company.

The new HORNER-MILDREN belt stretcher



THE Horner-Mildren Belt Stretcher consists of two body parts with a two-sheave pulley attached to each, a wedge for each body part and a section of 1/4" or 5/16" wire rope.

The ends of the wedges and body parts have inclined planes which engage when the wedge is drawn into the body. The wedges carry a series of hollow embossments on the side engaging with the belt which give them a secure grip on the belt when the tightening process begins.

The operation of the belt stretcher is extremely simple. The ends of the belt are placed in the body of the stretcher and the wedges are inserted. The dead end of the wire rope is fastened to some solid object such as a sill or belt house, and the engine is started. As the belt travels, the ends are brought together by the action of the tackle, ready for the application of a belt clamp.

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WORLD'S OLDEST AND LARGEST MANUFACTURERS OF OIL FIELD EQUIPMENT

Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

IDENTIFYING FORMATIONS

In drilling some of the Permian formations of West Texas I have had trouble in identifying the calcareous or lime-bearing rocks, calcite, dolomite and gypsum and anhydrite. Can you give me some simple field methods that are reliable for this identification purpose?—F. E. G.

Calcite, or spar, is identical in composition with pure limestone. In most limestones this main ingredient is mixed with some clayey material, and consists of crystals of such small size as to be invisible to the unaided eye. The rock appears to be a structureless mass. The mineral is carbonate of lime, and hence consists of calcium in chemical combination with oxygen and carbon. When burned in a kiln it loses its carbon and forms quicklime. Its hardness is less than that of soft iron and it is easily scratched with a knife. Limestones in which the calcite crystals are large enough to be readily made out by the naked eye are often described as "crystalline lime" by drillers.

Dolomite is a mineral slightly harder than calcite. It is a carbonate of lime and magnesia, and is not as readily affected by acid as limestone, which is carbonate of lime. Dolomite is rare except as it occurs in dolomitic rocks which are particularly common in the Ordovician and the Permian series of formations in Texas.

Gypsum and anhydrite both consist of sulphate of lime. Gypsum contains in addition some water, while anhydrite is free from combined water. When gypsum is heated it loses its water and is said to be calcined. In this state it has the same chemical composition as anhydrite. Neither of these minerals effervesces when subjected to the action of acids. Both are softer than calcite or limestone and can be carved with a knife.

The crystals of clear gypsum, known as selenite, have acute and obtuse angles and they have good cleavage in the direction of their length and breadth. They will split into thin leaves, which readily can be bent but which will not spring back to shape, as do the thin leaves of mica. On account of its resemblance to mica, crystalline gypsum is often incorrectly called "isinglass." Anhydrite differs from gypsum in its cleavage. It breaks straight in three directions which are at right angles to each other. Hence cuttings of anhydrite often have sharp, square angles.

Gypsum occurs in many clays and shales as separate crystals. It frequently was formed from the disintegration of pyrite in marls and other calcareous material. It is usually rare at depths below 400 or 500 feet. Below this depth anhydrite mostly takes its place. This material occurs in extensive beds in association with the cap rock of the Gulf Coast oil fields and underlies extensively the red beds of Northwest Texas.

By crushing a sample and washing in clear water to remove the very fine powder, the remaining crystals can be examined by aid of a magnifying glass and the gypsum, anhydrite, calcite and dolomite fragments will be flat, shiny, glittering and crystalline surfaces, and sharp angles.

Then select some of the better fragments of the material that has been crushed and washed and powder them carefully and place this powder in an inverted saucer into which a few drops of 20 per cent hydrochloric acid has been placed and if they are of limestone, or calcite, they will effervesce briskly; if of dolomite they will effervesce more slowly and if of gypsum or anhydrite effervescence will be lacking. It might be well to watch this reaction through a magnifying glass so that the degree of reaction can be noted carefully, and the test may be carried on by using small clean crystals selected from the crushed sample if a few drops of the hydrochloric acid is dropped on them and the reaction noted.

These methods are simple and can be employed on the derrick floor if ordinary caution is used in handling the hydrochloric acid, which should be kept in a small glass-stoppered bottle.

LOAD OF IMPACT

I see the expression "load of impact" often used in connection with the loading of derricks and I am not clear about its meaning. It would be appreciated if you would explain just what it means and what effect the load of impact will have on the strength of the derrick.—N. E. E.

The impact load on a derrick is one of four loads that this structure is required to sustain, the three others being dead, live and pulling loads.

The most variable and difficult load to calculate is that of impact, which is set up by hoisting and lowering pipe, casing and tools. This type of load will consist of the weight of hoisted and lowered equipment, plus additional load set up by acceleration and deceleration, or as more commonly stated, starting and stopping. The magnitude of this load will vary with the different operating conditions and is largely under the control of the operator, but the usual practice in calculating such forces is to multiply the total weight of the material handled by four or five, which will give an empirical figure quite suitable for ordinary purposes.

Actually to make calculations to determine such loadings would require the use of higher mathematics, and this is unnecessary for practical purposes.

DEPTHS IN GEOPHYSICAL WORK

In using the torsion balance, magnetometer and other geophysical instruments in hunting for structures containing oil does it make any difference how deep the structure is? In other words will these instruments show the presence of such a structure beneath the surface no matter whether it is 1,000, 3,000 or 6,000 feet underground?—E. G. N.

Depth is a factor in the use of geophysical instruments for finding structures favorable for the deposit of petroleum and so is the size of the mass. For example, a meteorite 1,000 feet below the surface would be likely to exert an appreciable effect on a dipneedle, while a short piece of iron pipe buried beneath three feet of earth probably would not influence the needle at all. So in the search for certain types of rock masses, depth and size impose limitations. Use of geophysical instruments in prospecting for petroleum has gone far enough to show certain maximum depths to which geophysical methods will penetrate under favorable conditions, that is, when the buried masses are large and distinctly different from their surroundings in physical properties. C. A. Heiland, professor of geophysics in the Colorado School of Mines, says on this point in his "Geophysical Methods of Prospecting":

"Making very careful estimates, it may be said that it is possible to detect with the torsion balance old buried formations down to more than 5,000 feet, while salt domes probably cannot be detected if their top is deeper than about 4,000 feet.

"The limit for the seismic method seems to lie in the neighborhood of 4,000 to 5,000 feet. With the magnetic method, however, we seem to be able to trace old deep-seated igneous massives easily down to a depth of 5,000 feet; according to new computations made by Koenigsberger it seems likely that the cause of most magnetic anomalies of a regional character lies deeper than 5 to 10 kilometers (16,404 to 32,808 feet).

"The radioactive method, however, has a very limited application in regard to a depth as emphasized before; the effect of fault zones, etc., does not penetrate through a cover of more than a few meters' thickness. As to electrical methods, most of the work has been done so far on deposits of very shallow depths as compared to the depths encountered in oil geology. In mining, no successful prospecting has been done with electric prospecting to greater depth than 500 to 800 feet, as far as the author knows.

"Very little is known at present how deep electric methods will go in detecting the effect of salt water horizons in oil geology; the depth will probably not be very much greater than 1,000 feet."

WHY IS IT CALLED THAT?

ROCKING THE WELL

The pressure required to start a well flowing by gas lift is two to five times that needed when the well is in normal operation. This is because the column of fluid in the well, being unaerated, is much more dense than the mixture of oil and gas that flows after regular production has been established.

To keep this starting pressure at as low a point as possible, to avoid forcing oil back into the formation, the casinghead sometimes is equipped to reverse the flow of gas down into the well. Thus it is possible to force gas first down the tubing and then down between the tubing and the casing. Several of these reversals of the gas flow are required sometimes to get the well started. This manipulation of the gas flow is called "rocking the well" because of its back-and-forth character.

CARBON BLACK LITERATURE

Reading your magazine regularly, I thought perhaps you would favor me with the names of some books published on the manufacture of carbon black from natural gas. If there are no books published, perhaps you have a bibliography of the articles published on this subject.—W. F.

"Carbon Black — Its Manufacture, Property and Uses," United States Bureau of Mines Bulletin No. 192, by R. O. Neal and G. St. J. Perrott, can be obtained by sending 25 cents to the Superintendent of Documents, Government Printing Office, Washington, D. C. It describes the four principal types of carbon black plants and discusses the chemistry of natural gas with respect to the manufacture of this product. You will find of interest also two articles which have appeared in The Oil and Gas Journal, "Carbon Black a Vital Business Need," June 16, 1927, and "Carbon Black's Position in Industry," May 15, 1924.

CROWN-BLOCKS SHIFT

I have been having some trouble with steel crown-blocks shifting on the crown-block supports on top of steel derricks. Can you tell me of any way that I can stop this tendency of the crown-block to move around?—N. E. I.

Most crown-blocks can be bolted to the crown-block supports in the proper position and if the derrick is run true and level there should be no reason to place the sheaves out of their established alignment. However, if the blocks cannot be bolted to their support in the prescribed manner, a good way of fastening them and preventing movement is to take two pieces of oak timber either 4 by 6 inches or 6 by 6 inches and notch them at each end in such a fashion that they will fit snugly over the flanges on the crown-block supports and then bolt them tightly against the bottom of the I beams forming the body of the crown-block.

If these blocks of wood are cut full length of the space between webs of the crown-block support members and square across each end, the crown-blocks cannot move in any direction and will also be prevented from jumping up in the event of line or casing parting under heavy strains.

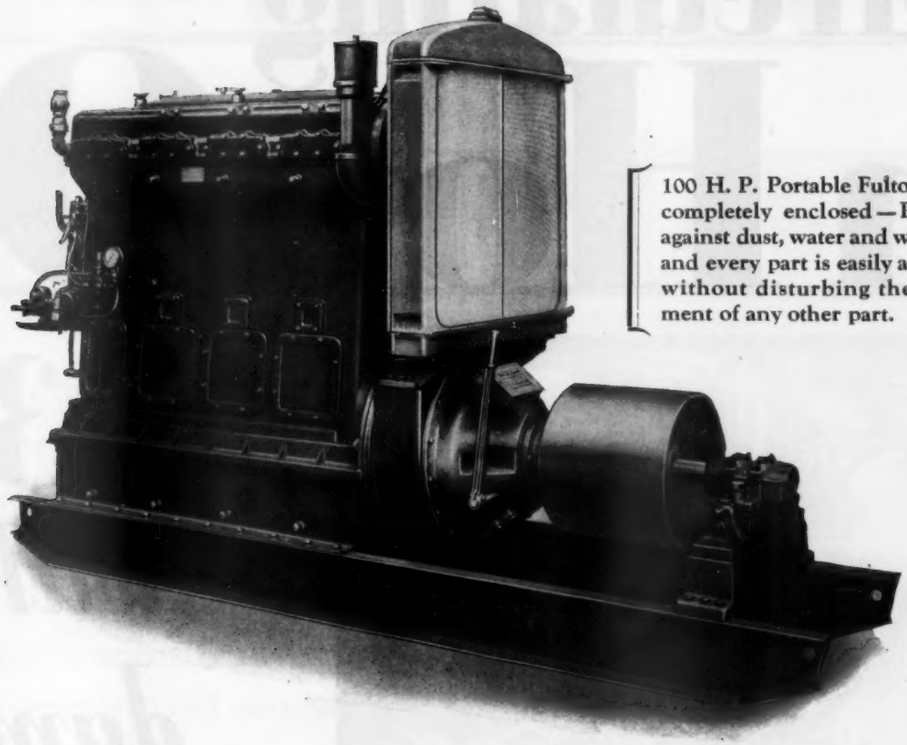
CAPACITY OF STORAGE TANKS

Can you give me a short method of finding the capacity of small underground storage tanks in gallons?—E. U. N.

For cylindrical tanks, multiply the depth by the square of the diameter by .7854, which will give the cubic inches of capacity of the tank. Dividing this result by 231, the number of cubic inches to the gallon, the quotient will be the capacity of the tank in gallons.

A short method is to square the diameter in inches and multiply by the length or height of the tank in inches. Then multiply this result by .0034, and the result will be the capacity in gallons. The factor .0034 is arrived at by dividing .7854 by 231 and thus saving one step in the first operation.

Dependable Mobile Diesel Power



100 H. P. Portable Fulton-Diesel completely enclosed—Protected against dust, water and weather—and every part is easily accessible without disturbing the adjustment of any other part.

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DIESEL ENGINES

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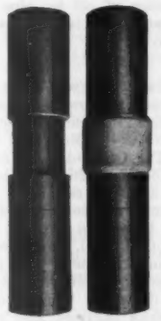
for 3 weeks without damage

These unretouched photos show 3″ Bettis Protectors after three solid weeks of drilling in an oil circulating job in the Maricopa, California, field. The Protectors did not slip in the least, nor lose their shape and were apparently in as good condition as when installation was made. Although the manufacturers of Bettis Protectors do not guarantee the Product for use in *hot* oil circulation this three weeks' demonstration adds more evidence of the durability of these Rubbers under drastic performance conditions.

Bettis Protectors

Bettis Protectors

No auxiliary fittings are necessary in Bettis Protectors. The Rubbers are made of finest para, processed, milled and cured by highly developed methods in our modern plant built exclusively for their manufacture. Every batch of rubber is scientifically tested. It is seamless, tear-resistant and retains its original life as long as the pipe is in service. They are easiest to install, grip the pipe tightly and do not interfere with use of an overshot.



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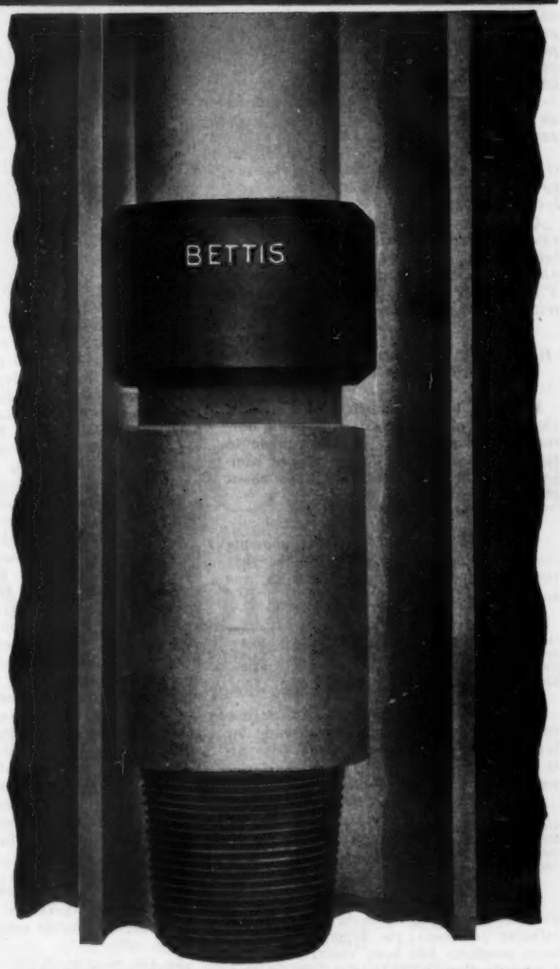

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"Best bet yet!"

No seams-No hinges

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

REFINERY YIELDS PETROLEUM PRODUCTS

It would be very much appreciated if you will furnish information showing how the various petroleum products made in the refineries in the United States compare in yield at this time with say about 10 years ago?—E. S. B.

The earliest available report showing the refinery yields are those for the year 1916, when the percentage recovery was as shown below:

Products—1916	Per cent
Gasoline	19.8
Kerosene	14.0
Gas oil and fuel	45.0
Lubricants	6.0

The great demands of the war time caused exceptional efforts to be made for larger yields of all products and especially gasoline so that by 1918 the recoveries were as given in the following:

Products—1918	Per cent
Gasoline	26.1
Kerosene	13.3
Gas oil and fuel	53.5
Lubricants	6.1

During the last 10 years considerable progress has been made in the different refining processes; the demand for petroleum products has been remarkable, and the production of crude oil grown in ever-increasing volume. The statement of yields for the year 1928 are indicated below:

Products—1928	Per cent
Gasoline	41.3
Kerosene	6.6
Gas oil and fuel	46.6
Lubricants	3.8

In all of these tables the yield of gasoline includes the natural gasoline used at the refineries for blending with the refined product, and the quantity of natural gasoline used in this way during 1928 was equivalent to 9.6 per cent of all gasoline made.

The gasoline yield may be divided on basis of kind of gasoline as 58.2 per cent straightrun, 32.4 per cent cracked, and 9.6 per cent natural. On a quantity basis this is 219,437,000 bbls. straightrun, 122,381,000 bbls. cracked, and 35,365,000 bbls. natural. This is a total of over 377,000,000 bbls.

It will be noted that while the kerosene yield has decreased, the gasoline has increased from 19.8 per cent in 1916 to 41.3 per cent in 1928. From the standpoint of the crude oil required this means that in 1928 the demand would have been more than twice as much as it actually was had the gasoline recovery been the same as it was in 1916.

SULPHUR DIOXIDE FOR REFINING OILS

Will you be kind enough to give me an outline of the liquid sulphur dioxide process used for the purification of distillates and lubricating oils?—W. S. T.

A clear outline of the liquid sulphur dioxide process for the treating of petroleum products, such as lubricating oils and kerosene, was given before the American Society of Refrigerating Engineers in New York December 5, 1928, by Dr. Rudolph Plank of the Technische Hochscule, Karlsruhe, Germany. The outline below is adapted from his paper.

Edeleanu, who gave the process its name, found that by shaking up 100 parts by volume of kerosene distillate obtained from a Rumanian crude oil with 75 parts by volume of liquid sulphur dioxide, two clearly defined layers of liquid were obtained, the upper layer containing saturated hydrocarbons and naphthene hydrocarbons, with 12 to 15 per cent sulphur dioxide, and a lower layer with a high proportion of sulphur dioxide containing the aromatic and unsaturated hydrocarbons in the distillate. From both these products the sulphur dioxide could be removed by evaporation almost completely and that the first-named product was a kerosene with quite satisfactory burning properties when used in lamps.

Edeleanu discovered the important fact that the selectivity of liquid sulphur dioxide towards different hydrocarbons increases rapidly as the temperature falls. Aromatic and unsaturated hydrocarbons are soluble in the sulphur dioxide, both at relatively high and relatively low temperatures, but saturated hydrocarbons and naphthenes are only very slightly soluble at room temperature and practically not at all at 14 degrees Fahrenheit. A table given by Doctor Plank showing results obtained by five distillates from different crude oils exhibited very appreciable differences both in the gravity and in the yield of the refined oil when treated at 50 and 14 degrees Fahrenheit, respectively, greatly in favor of the low-temperature treatment.

One disadvantage in the use of sulphur dioxide is its corrosive action on metals in the presence of water, and, therefore, distillates must be freed from water.

In the mixing of the two liquids—distillate and sulphur dioxide—the oil is introduced into the bottom of the mixing chamber; it moves upward through the liquid sulphur dioxide, while the latter tends always to gravitate to the bottom of the vessel, taking with it the dissolved impurities.

CATALYSIS IN CRACKING

I would like to know if there is any chemical which would act as a catalyst for the separation of wax in the state of cracking? Where can I get the best information about catalysis on organic chemistry?—L. B.

A catalyst is any medium or substance which does not enter into a reaction but does act simply by its presence to start or accelerate a reaction. Any chemical change which is brought about by any outside material or force may be described as catalysis. We are accustomed to think of a catalyst as a separate substance, and usually a solid, but heat, various kinds of surfaces, numerous liquids, light, sound waves, and even minute traces of moisture may act so as to supply the required push to start a chemical change.

Many processes that have been mentioned as catalytic cannot in the exact meaning of the word be so classified. Many of our most successful cracking methods do not make use of a catalyst. Some of the common catalysts are iron oxide, pumice, coke, aluminum chloride, fuller's earth and many special earths. A true catalyst should never have to be increased in quantity after it is introduced, provided there is no mechanical loss of the substance so used. Many of the chemical works make use of nickel and platinum as catalysts and it is especially important that such expensive materials be easily recovered and that the loss be kept at a negligible quantity. The recovery of the catalyst is often the problem that is more difficult to solve than it is to make the desired product.

The cracking of paraffin wax is considered to be a simple matter that may take place in the ordinary cracking still without the use of a catalyst, in fact the cracking stocks of the refinery which are known to contain appreciable quantities of wax are desired as the charge; because of the ease with which such material is converted to gasoline and the large yields obtained. The cracking of paraffin wax by means of heat and pressure was announced by Thorpe and Young in 1871. We are not familiar with any process which separates wax from oil by means of catalysis.

One of the good books on catalysis is Catalysis in Organic Chemistry by Sabatier (translation by Reid), published by D. Van Nostrand Co., 8 Warren Street, New York.

GRAVITY OF CAUSTIC SODA SOLUTIONS

Please tell me where I can find a table for converting degrees Baume gravity of caustic soda solution taken at any ordinary temperature to 60 degrees Fahrenheit. In the absence of such a table it has been necessary for me to cool all such gravity determinations to 60 degrees Fahrenheit. I presume that a table suitable for caustic solutions would be suitable for doctor solution also.—W. S. P.

The usual practice in refineries is to cool caustic soda solutions to about 60 degrees Fahrenheit when a close determination of the gravity is necessary. The influence of temperature on such solutions is indicated in the table below:

Temperature and Specific Gravity Caustic Soda

Temp C°	Specific gravity
0	1.100
10	1.097
20	1.093
30	1.091
40	1.087
50	1.082
60	1.077
70	1.071
80	1.065
90	1.059
100	1.053

The densities mentioned are equivalent to extremes of 13.2 and 7.2 Baume. The NaOH concentration varies between 4.64 and 8.68 per cent. Under ordinary conditions the temperature of the solution is close enough to 60 degrees Fahrenheit for plant control and no correction for temperature is made.

Van Nostrand's Chemical Annual gives the following under correction for temperature:

(a) As the density of water at various temperatures is readily obtained from tables, specific gravities obtained by comparison with water at one temperature may be readily recalculated to specific gravities with water at other temperatures.

If the specific gravity has been determined for water at t degree and it is desired to recalculate to specific gravity of water at T degree the specific gravity found must be multiplied by the ratio of the densities of the water at these temperatures, that is, by

$$\frac{\text{density of water at t degree}}{\text{density of water at T degree}}$$

That is, the two specific gravities are numerically inversely proportional to the densities of the water at the temperatures given.

(b) If the cubical coefficient of expansion of the substance in question is known the specific gravity of the substance at any temperature may be calculated from the specific gravity at a given temperature. If a equals coefficient of expansion at or around the temperature of the determination, s equals specific gravity at temperature of determination t degree, and S equals specific gravity at any other temperature T, then

$$S = s[1 + a(t - T)]$$

Most liquids have an irregular expansion. This is taken from tables. If the volumes of the same weight of a liquid be V at T degree and v at t degree, and S and s be the densities at T degree and t degree, we have:

$$S = s \times \frac{v}{V}$$

For technical use, specific gravity is frequently determined at any convenient temperature, and referred to water, of either that same temperature, or to water at 4 degrees Centigrade, weight in air being taken as a basis.

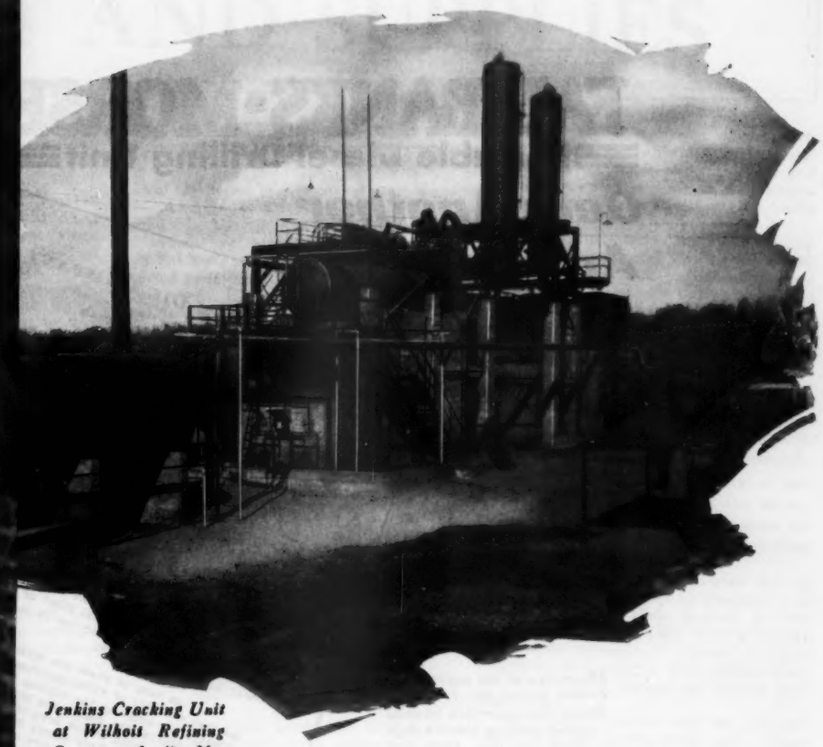
SHRINKAGE IN OIL BY TRANSPORTATION

Kindly advise if you have any information showing natural shrinkage in the transportation of oil by pipe line. Does this vary according to the gravity of the oil?—O. A. R.

The shrinkage losses in pipe lines are due to many factors, such as evaporation, changes in temperature, corrosion and breaks in the lines. A. M. Rowley states in The Oil and Gas Journal, page C-98, October 7, 1926, "The loss through shrinkage alone is estimated at 250,000 bbls. a year to one company. This shrinkage is due largely to changes in the temperature of the oil, there being a decrease of one-twentieth of 1 per cent in the volume of the crude oil for every drop of 1 degree in temperature. Evaporation, breaks in lines and the settling of sediment and water from the oil result in other losses sustained by the pipe line companies so that the loss from all causes is reported by one company to amount to 750,000 bbls. a year."

The shrinkage usually increases with the gravity and the distance. When the ordinary grades are transported comparatively short distances, the shrinkage is so small that it cannot be detected. The loss through evaporation is of course greater with the lighter crudes than it is with the heavy grades, and the transporting companies are endeavoring to discover means for better insulation of the lines, tighter tanks, water top tanks, steel roofs, and other suggestions are being studied.

An effort is always made to allow for the normal shrinkage, and the correction factors are included in the deliveries from the storage tanks. When a shipment is made by a pipe line, especially where large quantities are involved, the normal allowance is 1 per cent.



Jenkins Cracking Unit at Wilhoit Refining Company, Joplin, Mo.

Automatic Still and Tower Controls on Jenkins Unit at Wilhoit Plant

THE picture at the left shows the instrument board, with two indicating and one Brown Recording Pressure Gauge at the extreme left. Next are two Brown Automatic Control Recording Pyrometers for Bubble Towers. Then the Brown Indicating Pyrometer with Rotary Switch connecting to thermocouples measuring various furnace and oil temperatures. Just below the panel board are two Brown Automatic Valve Control Mechanisms, regulating the amount of cooling oil to the Bubble Towers. As on other Jenkins units these controls operate from the temperature of the vapor leaving the towers.

A very good view of a typical Jenkins Cracking Unit layout is presented by the picture at the right. The brick structure with the tall stack at the left is the furnace, with the fuel supply automatically controlled by a Brown Automatic Control Pyrometer. Some installations of this character are governed by thermocouples taking the hot oil outlet temperature; others taking their control from the furnace temperature. The two vertical towers shown are respectively the Bubble Tower and the Reflux Tower. Each is provided with automatic control as shown in the picture at the left.

No matter what your plant layout, your process or your units, Brown indicating, recording and automatic control pyrometers, pressure gauges, thermometers, flow meters, liquid level gauges and tachometers, plus the cooperation of Brown engineers skilled in instrument applications to refinery problems, can help you keep your plant on a profitable competitive operating basis. Write for information, quotations or representative.

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Portable Diesel Drilling Unit

Gets Another Approval

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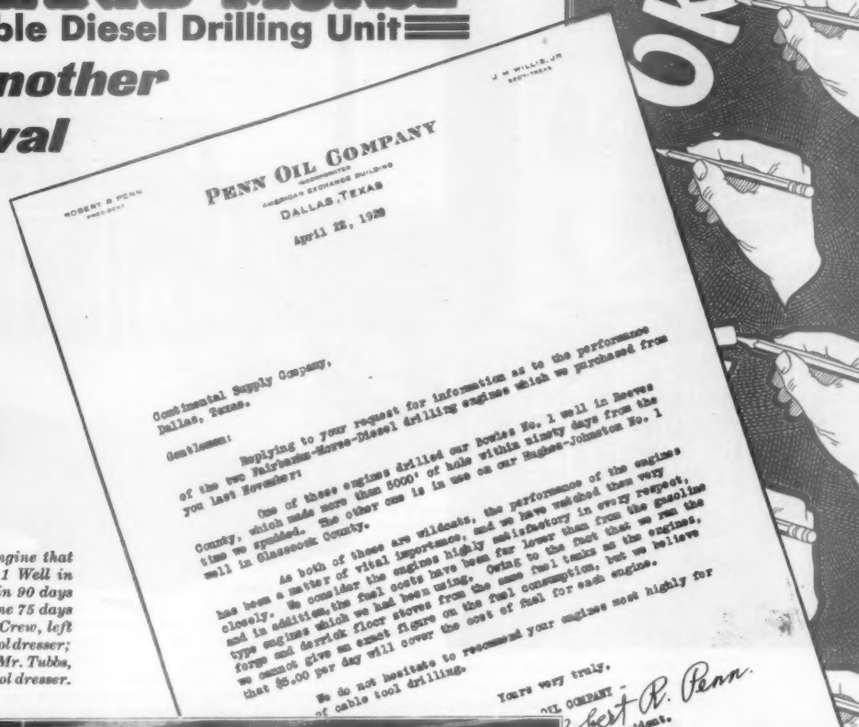
The crew and the engine that drilled Bowles No. 1 Well in Reeves County within 90 days —actual drilling time 75 days —depth 5207 feet. Crew, left to right, Mr. King, tool dresser; Mr. Black, driller; Mr. Tubbs, driller; Mr. Scott, tool dresser.



PENN OIL COMPANY
DALLAS, TEXAS
April 22, 1929

Continental Supply Company,
Dallas, Texas.

Gentlemen:

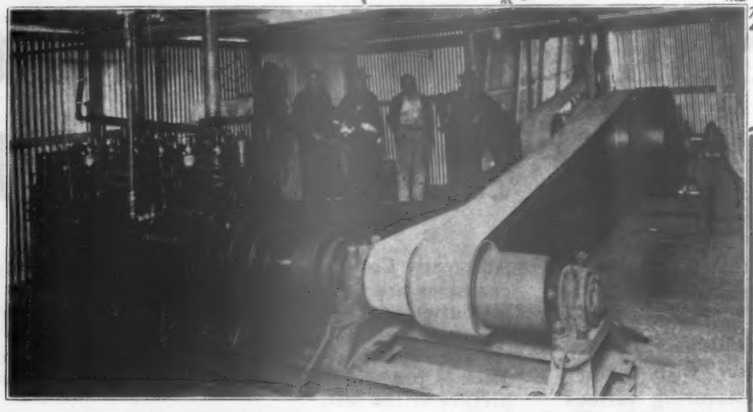
Replying to your request for information as to the performance of the two Fairbanks-Morse-Diesel drilling engines which we purchased from you last November:

One of these engines drilled our Bowles No. 1 well in Reeves County, which made more than 5000' of hole within ninety days from the time we spudded. The other one is in use on our Hughes-Johnston No. 1 well in Glasscock County.

As both of these are oildists, the performance of the engines has been a matter of vital importance, and we have watched them very closely. We consider the engines highly satisfactory in every respect, and in addition, the fuel costs have been far lower than from the gasoline type engines which we had been using. Owing to the fact that we run the forge and derrick floor stoves from the same fuel tanks as the engines, we cannot give an exact figure on the fuel consumption, but we believe that $6.00 per day will cover the cost of fuel for each engine.

We do not hesitate to recommend your engines most highly for cable tool drilling.

Yours very truly,
PENN OIL COMPANY
Robert R. Penn
President.



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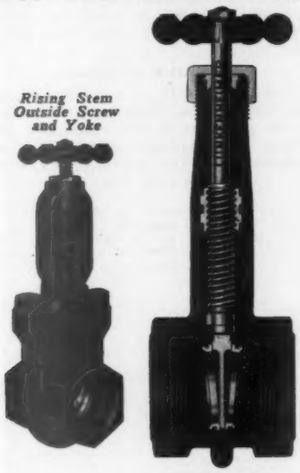
EQUIPMENT AND SUPPLIES

KING-CLIP GATE VALVE MADE IN THREE DESIGNS

The Lunkenheimer Co., Cincinnati, Ohio, has developed a new valve—the "King-clip" gate valve—which the manufacturers say is designed to give equally satisfactory results on steam, oil, gas, air, water and gasoline lines. The valve is built to withstand rough usage. "King-clip" valves are made in three designs—rising stem inside screw, outside screw and yoke and quick operating. All types are procurable in iron body bronze mounted and all-iron patterns, with screw or flange ends.

The body is made of iron, especially alloyed for valve service. Substantial hexagons resist wrenching strains and piping stresses. Thread length accommodates both American standard and A.P.I. line pipe. Flange end valves have flanges



Rising Stem Outside Screw and Yoke

Rising Stem Inside Screw

Sliding Stem—Quick Operating

of the 125-pound "American standard" for iron flanges and are plain faced. The steel clip provides a simple method of securing the connection between the body and bonnet. It facilitates dismantling the valve for cleaning or inspection and lends strength and rigidity to the body. A screwed stuffing box nut is used in valves up to 3 inches inclusive; sizes 1 inch to 3 inches inclusive have gland follower. A bolted iron gland is used in 3½ and 4-inch valves.

The bronze bushing in bonnett in inside screw and quick operating iron body bronze mounted valves provides a non-corrosive contact with bronze stem, protects stem threads and insures easy operation. Outside screw and yoke valves, both iron body bronze mounted and all-iron, have bronze bushing in top of yoke.

The stem has rugged, wear-resisting thread of generous length. It is always in full contact with thread in bonnet, with valves open or closed. The shoulder above stem thread forms tight contact with seat under stuffing box, permitting repacking valve under pressure when wide open.

The disc is sharply tapered, making the valve also adaptable for handling heavily impregnated fluids. Seat rings are permanently rolled in. The method of inserting them in the body makes it impossible for the rings to become loose. The handwheel is held on stem by a brass locknut. Sizes one-quarter to 2½ inches inclusive have ball handwheel; larger sizes have plain rim handwheel.

Iron body bronze mounted valves, inside screw patterns, have iron body and bonnet; bronze bonnet bushing, disc, seat rings, stem, stuffing box nut and gland; steel clip. Quick operating sliding stem patterns are of similar material to the inside screw patterns, except that the handwheel is replaced by an iron lever attachment which permits practically instantaneous valve operation. Outside screw and yoke valves have iron body, yoke and gland; bronze yoke bushing, disc, seat rings and stem; steel clip.

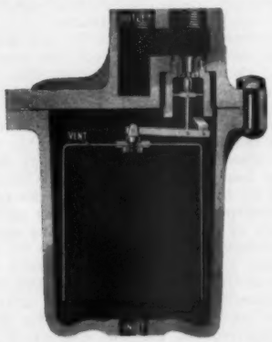
In the all-iron patterns, all parts except the bronze yoke bushing in outside screw and yoke valves, are made of ferrous metals. All-iron valves are for use in handling solutions which attack bronze but not iron. Sizes up to 2 inches inclusive have permanently rolled in steel seat rings; larger sizes have integral seats.

Pressure ratings of Lunkenheimer "King-clip" gate valves are as follows: Screw ends one-quarter to 2 inches inclusive—150 pounds working steam pressure, 225 pounds gas or liquid pressure; screw ends 2½ to 4 inches inclusive and flange ends 1½ to 4 inches inclusive—125 pounds working steam pressure, 175 pounds gas or liquid pressure.

The offices of Byron Jackson Co., in Houston, Tex., have been moved from 2201 Breckenridge Street to 1915 Post Dispatch Building.

STRONG STEAM TRAP IS SIMPLE OF OPERATION

The 20 Series Strong steam trap, manufactured by the Strong, Carlisle & Hammond Co., Cleveland, Ohio, is the result of several years of experimental work and has been tested thoroughly under operating conditions, according to the manufacturers. High operating efficiency is said to have been gained through the absence of moving parts, pins and intricate mechanism, together with the fact that



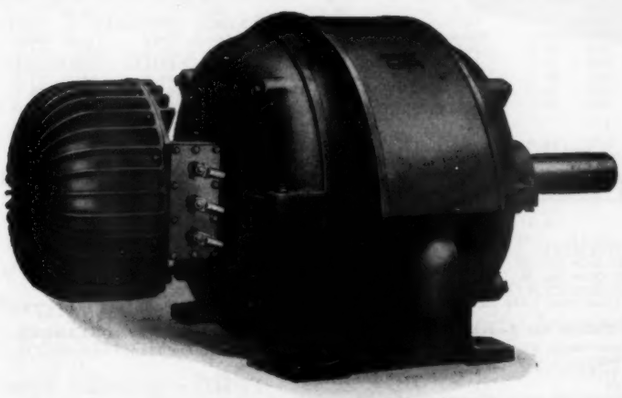
all operating parts except the bucket are made of anum-metl, used exclusively by this company and reported to be exceptionally durable.

When the body of the trap is entirely filled with water and the bucket filled with steam and air, the bucket is buoyant and the valve closed. As steam and air pass through the small vent hole in the bucket, the steam is condensed and the air passes up around the valve and seat. In time the steam in the bucket is replaced by water. Then the bucket loses its buoyancy and sinks, opening the valve. The trap continues to discharge automatically as long as water enters the inlet. As soon as steam enters the inlet, it forces the water from the bucket, which becomes buoyant, closing the valve.

The bucket is made of spun copper and is properly weighted with an iron weight to obtain maximum pull on the valve mechanism.

The trap is made for all operating pressures in semisteel bodies up to 225 pounds pressure, and the manufacturers say they plan to introduce complete forged steel units for high pressures and temperatures.

ALLIS-CHALMERS DESIGNS PROTECTED-TYPE MOTOR



For rotary drilling operations in oil fields where machinery is exposed to splashing water or to explosive and corrosive gases, Allis-Chalmers Manufacturing Co., Milwaukee, Wis., has designed a motor of the protected type.

An easily removable, reinforced cast enclosure is provided for the brush rigging and slip rings which protect these parts. Since machined joints are used and the motor bearing provides a seal along the shaft, the enclosure is practically gas tight. The stator has the drip-proof feature which protects the windings from falling material, dripping water, etc.

For slush pump operation on wells where gas is encountered in large quantities, the same type of motor is recommended by the manufacturer because of the protective features incorporated in the construction. Modern methods in oil production quite generally call for some type of speed reducer which brings the motor within a few feet of the well. Allis-Chalmers Manufacturing Co. furnish pumping motors, either the two-speed double-rated, or single-speed double-rated, incorporating the same degree of protection as that built into the drilling motor.

K-P BIT DESIGNED TO MAKE STRAIGHT HOLE

The new improved K-P straight-hole bit, manufactured by the Kennedye-Plumb Corp., St. Louis, Mo., has a machined recess for insertion of the blades, and the holding lugs of the blades fit into depressions. Heads are forged from solid billets of special steel.

The cutter blades, two to each bit, do all the cutting and are so designed and heat-treated that they present a constantly sharp cutting edge. This wire edge is possible through a process of heat treatment and design, with double alloy tool steel which makes the blades self-sharpening.

The reamers, two to each bit, are provided with two cutting edges each. These cutting edges are 11 inches long. Therefore each reamer has 22 inches of cutting edge to a side. The reamers, extending 11 inches up the side of the head, also act as secondary cutters on the bottom for only 1 inch to a side. In backing up the primary cutting blades at a different angle, they prevent the bit from dropping into a fault. This large amount of reaming action is further added to by 6 inches of side-cutting surface of the cutter blades. Therefore a K-P straight-hole bit presents 56 inches of reaming edge.

UNION CARBIDE UNITS MOVE

The Chicago district and central division offices of various units of the Union Carbide & Carbon Corp. have moved to the new 40-story Carbide and Carbon Building at Michigan Avenue and South Water Street, Chicago. Units of the Union Carbide & Carbon Corp. which will make this new building their Chicago home are: The Linde Air Products Co., The Prest-O-Lite Co., Inc., Oxweld Acetylene Co., Oxweld Railroad Service Co., Union Carbide Sales Co., Carbide & Carbon Chemicals Corp., National Carbon Co., Inc., Haynes Stellite Co., J. B. Colt Co. and Acheson Graphite Co. These various subsidiaries of the corporation manufacture oxygen, acetylene, acetylene generators, cutting and welding equipment, carbon products, batteries, flashlights, chemicals, cutting tools and other products.

NEW STARTER ON MARKET

An improved starter which starts a motor directly across the line has been placed on the market by the Lincoln Electric Co., Cleveland, Ohio. The starter is controlled by the new Lincoln safety push button, which is standard equipment with the across-the-line safety starter.

HUGHES ENLARGES FACTORY

The Hughes Tool Co., of Houston, Tex., has started construction of an additional unit to its factory. The new building will be 400 feet long and 140 feet wide and will cost more than $103,000. The new plant is to take care of the company's expansion in business

Effect of Agitation With Gas or Air

Results of Several Tests Using Oil of Various Gravities Found Comparable With Field Conditions

Prepared by R. H. Pence for the Bessemer Gas Engine Co.*

The effect on petroleum of agitation with gas or air[1] is described by a well known physical law, namely, Dalton's law of partial pressures, which may applicably be explained as follows: In gas lift work each particular hydrocarbon in the gas continues to dissolve in the oil until its partial vapor pressure in the gas is equal to its partial vapor pressure from the oil. Each individual hydrocarbon is absolutely independent of all others. Consequently the character and proportions the different hydrocarbons present in the gas and oil will determine the action.

All gases diffuse into one another and the process goes on until each gas is uniformly distributed through the entire space. If the pressure of each gas be measured separately, it will be found that diffusion continues until the pressure of any given gas is the same in all parts of the space; and further, it will be found that the pressure exerted by each gas is the same as that which the given mass of the gas would have exerted if it alone were occupying the entire space. This pressure is called its partial pressure and the total pressure of the gaseous mixture is the sum of all the partial pressures of the component gases.

The writer has made several tests on a miniature scale, using oils of various gravities and agitating with residue gases from a compression gasoline plant, the residue from the absorption plant and air. Although the results may not exactly duplicate field conditions, they are comparable with the data of actual field operations which will be submitted subsequently. The rate of agitation, the temperature of the oil and other factors were maintained practically constant.

Experimental Results

Attention is called to Tables 1, 2 and 3. With the 28 gravity crude the residue from the compression plant did not change the gasoline content of the oil, but the gravity was raised and the initial boiling point was lowered, which indicates that the light fractions of the gas were absorbed by the oil and that some of the heavy fractions of oil were carried away by the gas. The residue gas from the absorption plant had no effect on the gravity of oil or its initial boiling point, but reduced the gasoline content of the oil only 1 per cent, which is within the limit of error of a laboratory distillation. Agitation with air decreased the gravity of the oil, raised the initial boiling point and reduced the gasoline content of oil as much as 2 per cent.

Agitating 38 gravity oil with the residue from the compression plant, the gasoline fraction of oil was lowered as much as 3.7 per cent and its gravity changed from 59.4 degrees A.P.I. to 58.1 degrees A.P.I., the gravity of the original crude was lowered and the initial boiling point was practically unchanged. The residue gases from the absorption plant gave similar results, although slightly more gasoline was removed from crude. Agitation with air showed that as much as 6.7 per cent of the gasoline was carried away, the gravity of oil being lowered considerably and the gravity of the gasoline fraction was changed from 59.4 to as low as 55.6 when gas-oil ratio was 2,000 feet per barrel.

With 42 gravity oil the residue gas from the compression gasoline plant, the gravity of the oil was lowered as much as 2 degrees A.P.I. and gasoline content 4 per cent. The quantity of gasoline removed by the residue from absorption plant was even greater than above and was as high as 4.5 per cent. Air lowered the gravity of oil considerably and changed the gasoline content as much as 5.5 per cent, the gravity of the gasoline being lowered from 61.9 degrees A. P.I. to as low as 56.1 degrees A.P.I.

The field results of the actual operation of the gas lift are similar to experimental results. In a well with gas lift installed by writer the gravity of the oil was 37.1 degrees A.P.I. and had gasoline content of 30 per cent and gravity of 55.6. The oil produced from an offset well in the same sand which was being pumped had a gravity of 38.2 degrees A. P.I., a gasoline content of 32.5 per cent which had a gravity of 58.1.

One example[5] of a California well in Santa Fe Springs Field when pumped had a gravity of 34.8 degrees A.P.I. and a gasoline content in casinghead gas of .80 gallon per barrel of oil pumped, but when produced by gas lift had a gravity of 33.6 degrees A.P.I., and the gas contained 1.46 gallons of gasoline per barrel of oil lifted.

In the Panhandle Field[6] gas carrying but a trace of gasoline when injected into a well returned carrying but 1.0 gallon per 1,000 feet gasoline content of gas when being pumped. A gas lift installation using gas in wells in Cat Canyon Field raised the gravity of oil from 9 degrees A.P.I. to 13 degrees A.P.I. One company in the Seminole Field reports an average increase in gravity of 1.5 degrees A.P.I. when changing from air to gas.

Application of Results

From these data it may be deducted that the effect of the gas on the quality of oil produced is not uncertain, but strictly in accordance with well-known physical laws. The quantity of gasoline

(Continued on Page 126)

*This is the third of a series of articles on air and gas lift. The first article of the series was published in the April 18 issue of The Oil and Gas Journal.

[1]Roy O. Neal, The Oil and Gas Journal, February 16, 1928.

[5]"New Developments in the Use of Gas Lifts." R. P. McLaughlin.

[6]Volume and Pressure Control for Wells on Gas Lift. E. O. Bennett and K. C. Sclater, The Oil and Gas Journal, February 24, 1927.

TABLE NO. 1—BARTLESVILLE SAND OIL, WASHINGTON COUNTY, OKLAHOMA

	Original Crude		Residue Compression Plant A		Residue Compression Plant B		Residue Compression Plant C		Residue Absorption Plant A		Residue Absorption Plant B		Residue Absorption Plant C		Air A		Air B		Air C	
Gravity	28.5°	A.P.I.	29.3°		29.5°		29.4°		28.5°		28.5°		28.4°		28.3°		28.1°		27.9°	
I.B.P.	162°		108°		105°		109°		152°		148°		162°		215°		220°		228°	
	Temp.	Grav.	Temp.	Grav.	Temp.	Grav.	Temp.	Grav.	Temp.	Grav.	Temp.	Grav.	Temp	Grav.	Temp.	Grav.	Temp.	Grav.	Temp.	Grav.
5 Pct. cut	314°	51.0	315°	55.8	316°	56.7	314°	58.0	316°	51.7	318°	52.0	327°	51.5	215°	50.4	220°	49.6	228°	49.4
11.5 Pct.	392°	42.8	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
11.0 Pct.	....	....	392°	42.7	392°	42.7	392°	43.2	392°	42.6	....	....	....	....	....	....	....	....	....	....
10.5 Pct.	....	....	....	....	....	....	....	....	....	....	392°	42.9	392°	42.2	....	....	....	....	....	....
10.0 Pct.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	392°	43.0	392°	42.8	....	....
9.5 Pct.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	392°	42.6

Charcoal Tests of Gas.

Before Circulation	.35 Gals per M.	.07 Gals per M.	
*After Circulation	.34 Gals per M.	.19 Gals per M.	.38 Gals per M.

A. Agitation rate 500 cu. ft. per bbl. B. Agitation rate 1,000 cu. ft. per bbl C. Agitation rate 2,000 cu. ft. per bbl. *Rate of circulation, 1,000 cu. ft. per bbl., temperature 60° to 70° Fahrenheit.

TABLE NO. 2—BARTLESVILLE SAND OIL, OSAGE COUNTY, OKLAHOMA

	Original Crude		Residue Compression Plant A		Residue Compression Plant B		Residue Compression Plant C		Residue Absorption Plant A		Residue Absorption Plant B		Residue Absorption Plant C		Air A		Air B		Air C	
Gravity	38.7°A.P.I.		38.4°		37.8°		37.3°		37.9°		37.2°		36.8°		36.8°		36.1°		35.6°	
I.B.P.	84°F.		80		82		84		95		105		....		140		152		158	
	Temp.	Grav.	Temp.	Grav.	Temp.	Grav.	Temp.	Grav.	Temp.	Grav.	Temp.	Grav.	Temp.	Grav.	Temp.	Grav.	Temp.	Grav.	Temp.	Grav.
5 Pct.	138	83.8	166	83.0	200	76.5	204	72.7	180	79.7	196	74.5	208	72.1	212	69.2	226	67.2	250	62.7
10 Pct.	222	68.2	220	68.1	250	64.2	251	64.0	244	62.9	264	62.1	268	61.8	248	63.2	272	60.5	290	58.0
15 Pct.	260	61.0	256	60.7	288	58.1	304	56.7	284	57.9	286	57.8	292	57.5	292	58.0	302	55.5	324	54.2
20 Pct.	303	55.8	304	55.4	324	54.0	336	52.3	322	55.0	326	54.8	328	54.6	334	52.7	334	53.0	358	51.0
25 Pct.	340	51.4	344	51.2	364	51.0	366	50.3	362	51.2	364	51.2	368	51.3	372	49.6	374	49.5	386	47.7
32.7 Pct.	392	48.4	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
31.5 Pct.	....	....	392	48.7	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
29.5 Pct.	....	....	....	....	392	47.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....
29.0 Pct.	....	....	....	....	....	....	392	47.6	392	48.6	....	....	....	....	....	....	....	....	....	....
28.7 Pct.	....	....	....	....	....	....	....	....	....	....	392	47.6	....	....	392	47.0	....	....	....	....
28.0 Pct.	....	....	....	....	....	....	....	....	....	....	....	....	392	47.8	....	....	....	....	....	....
27.7 Pct.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	392	46.8	....	....
26.0 Pct.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	392	....
Composite	59.4°A.P.I.		59.1		58.4		58.1		58.7		58.1		57.6		57.4		56.7		55.6	

Charcoal Tests of Gas.

*Before Circulation	.36 Gals per M.	.07 Gals per M.	
After Circulation	1.48 Gals per M.	1.29 Gals. per M.	1.62 Gals. per M.

A. Agitation rate 500 cu. ft. per bbl. B. Agitation rate 1,000 cu. ft. per bbl C. Agitation rate 2,000 cu. ft. per bbl. *Rate of circulation, 1,000 cu. ft. per bbl., temperature 60° to 70° Fahrenheit.

TABLE NO. 3—BARTLESVILLE SAND OIL, CREEK COUNTY, OKLAHOMA

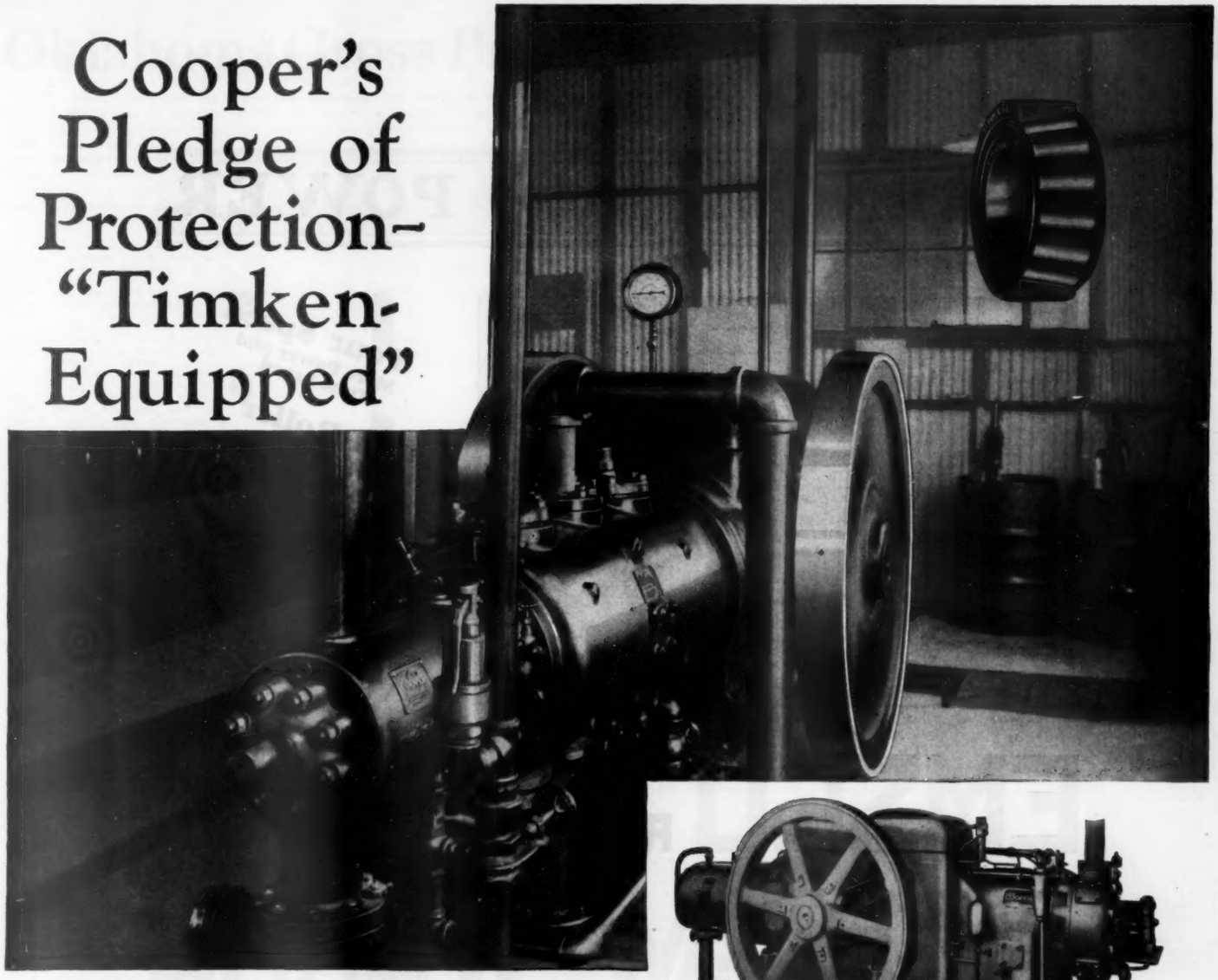
	Original Crude		Residue Compression Plant A		Residue Compression Plant B		Residue Compression Plant C		Residue Absorption Plant A		Residue Absorption Plant B		Residue Absorption Plant C		Air A		Air B		Air C	
Gravity	42.6°A.P.I.		41.5°		41.1°		40.8°		41.1		40.5		40.0		40.9		40.1		39.1	
I.B.P.	78°F.		70		80		75		90		90		108		120		135		148	
	Temp.	Grav.	Temp.	Grav.	Temp.	Grav.	Temp.	Grav.	Temp.	Grav.	Temp.	Grav.	Temp.	Grav.	Temp.	Grav.	Temp.	Grav.	Temp.	Grav.
5 Pct.	154	85.4	182	80.1	188	76.8	198	76.8	184	79.1	198	73.8	204	68.6	190	75.0	202	69.0	210	65.5
10 Pct.	202	75.8	218	69.7	230	68.6	232	66.4	212	68.4	230	67.3	238	63.4	214	69.4	232	65.8	244	63.7
15 Pct.	230	67.7	245	63.5	254	63.2	256	61.7	242	62.7	257	62.0	262	59.6	252	63.3	270	60.4	272	59.5
20 Pct.	260	61.1	276	58.8	282	59.2	282	58.0	268	59.2	278	59.0	290	57.2	274	58.4	288	56.7	292	56.1
25 Pct.	297	56.3	304	56.2	308	56.6	314	55.5	292	56.6	302	56.4	318	54.4	296	56.3	316	54.4	325	54.2
30 Pct.	323	54.5	336	53.2	338	53.0	342	52.2	322	54.2	332	53.9	348	52.4	330	52.7	334	52.1	348	51.2
35 Pct.	362	51.2	368	50.7	370	50.2	372	50.2	360	51.3	362	51.2	380	49.2	368	50.1	370	49.4	384	48.3
42.6 Pct.	392	48.2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
40.5 Pct.	....	....	392	47.8	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
40.0 Pct.	....	....	....	....	392	47.3	....	....	392	....	....	....	....	....	....	....	....	....	....	....
39.5 Pct.	....	....	....	....	....	....	....	....	....	48.0	....	....	....	....	....	....	....	....	....	....
39.9 Pct.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
38.5 Pct.	....	....	....	....	....	....	392	47.6	....	....	392	48.1	....	....	392	48.2	....	....	....	....
38.0 Pct.	....	....	....	....	....	....	....	....	....	....	....	....	392	47.8	....	....	....	....	....	....
37.0 Pct.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	392	....
Composite	61.9°A.P.I.		59.6		59.0		58.6		59.8		58.4		57.1		58.9		57.1		56.2	

Charcoal Tests on Gas.

*Before Circulation	.36 Gals per M.	.07 Gals per M.	
After Circulation	1.62 gals per M.	1.40 Gals per M.	1.88 Gals per M.

A. Agitation rate 500 cu. ft. per bbl. B. Agitation rate 1,000 cu. ft. per bbl C. Agitation rate 2,000 cu. ft. per bbl. *Rate of circulation, 1,000 cu. ft. per bbl., temperature 60° to 70° Fahrenheit.

Cooper's Pledge of Protection—"Timken-Equipped"



In the oil fields, anti-friction means Timken Bearings. And Timken Bearings mean anti-friction and more—full radial-thrust capacity. There are more Timkens used in this field of operation than all other anti-friction types combined.

The *big* reason is wear-prevention. "Timken-Equipped" always means longer usefulness with less attention. But other reasons are: power saving—lubricant economy—inspectionless operation.

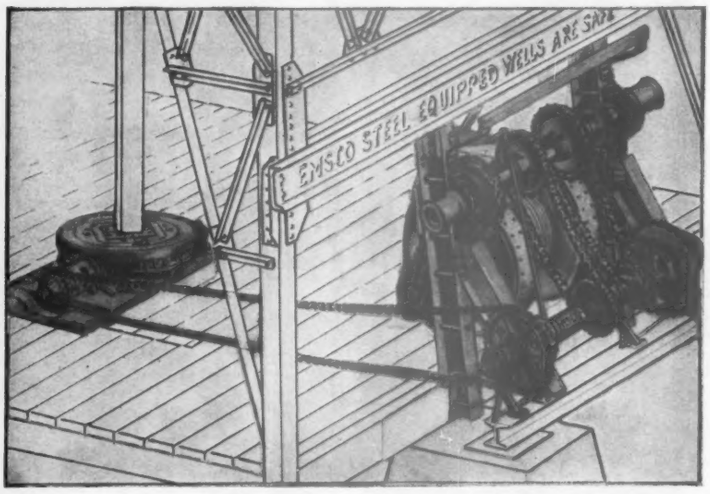
Timken economies are the result of Timken rigidity—Timken compactness—Timken greater load area.

You order Timken economies when you *order* "Timken-Equipped". You practically specify lowest cost per day and per year when you get the exclusive Timken economy-combination: Timken tapered construction, Timken *POSITIVELY ALIGNED ROLLS* and Timken-made steel.

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

TIMKEN *Tapered Roller* **BEARINGS**

STRENGTH AND POWER



Four Speed
More Power and Time Saved

All Roller Bearing
Speed in Lowering Elevators

Three Shaft
Strength—No Clutches on Line Shaft

Two Post
Compactness

EMSCO TYPE H-46 ALL ROLLER BEARING FOUR SPEED DRAW WORKS

GENERAL SPECIFICATIONS

DRUM SHAFT—8" diameter at center of shaft; 7½" diameter at clutches and sprockets; S. A. E. 3135 Chrome Nickel Steel Forging. Hardened races are pressed onto the shaft and it is not necessary to remove them when changing sprockets.

LINE AND JACK SHAFT—7½" diameter; S. A. E. 3135 Chrome Nickel Steel Forging.

STEEL POSTS AND BRACE POSTS—10"x10" H-beams, with reinforcing plates riveted and welded above and below the bearings. Heavy tubular reinforcing spacers are welded at the bolt holes between the flanges. Machined Cat Line Rollers are mounted in substantial brackets, bolted to the two posts.

DISTANCE FROM CENTER TO CENTER—of Posts 97-7/8".

INTERCHANGEABLE DRUM, LINE & JACK SHAFT BOXES—The Extra Heavy Duty Hyatt Roller Bearings are mounted in steel boxes of the ball and socket self-aligning type. The roller bearing assembly swivels to conform to the axis of the shaft, insuring perfect alignment at all times. The roller bearings are lubricated by means of the Alemite system.

BRAKE WHEELS—Patented Non-bursting Press Forged Steel and hardened, 46" diameter by 9½" face.

SPOOLING DRUM—25" diameter by 34" long (grooved for one inch wire line).

BRAKE BAND LINING—Solid woven brake blocks 1" thick.

ROTARY MACHINE DRIVE—from Jack Shaft, runs close to derrick floor.

Patented 1506479

Patents Pending

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EQUIPMENT
LOS ANGELES, CALIFORNIA
HOUSTON, TEXAS; DALLAS, TEXAS
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For further information write for Bulletin No. 33.

All Emsco and D+B Products (Except Derricks) Sold Exclusively in Mid-Continent Fields by The Continental Supply Company

EMSCO STEEL EQUIPPED WELLS ARE SAFE

Oklahoma Gross Production, First Quarter 1929

The gross production tax report for Oklahoma for the first quarter of 1929 includes the names of between 14,000 and 15,000 producing companies, firms and individuals and royalty owners. The appended report only includes producers whose crude production for the quarter had a value of $5,000 or more and royalty owners whose returns for the quarter were $2,000 and upwards. The production figures represent net production.

In the first quarter of 1929 the Prairie Oil & Gas Co. led all producers with a total of 3,988,914.80 bbls. valued at $5,351,809.35, an average of $1.34 per barrel.

A

Name and address—	No. of bbls.	M. ft. gas	Amount
*Alma Royalties Corp., New York City	.....	.....	$18,827.86
Arthur Oil Co., Sistersville, W. Va.	8,805.42	16,955,663	11,673.66
Peter Adamson Jr., Tulsa	.....	.....	5,719.61
S. W. Anthony, Mounds	207.77	128,841	13,092.16
*S. A. Apple, Oklahoma City	.....	.....	15,061.23
*Nettie H., Charles and Wilmer Anderson, Los Angeles, Calif.	.....	.....	2,797.37
Arkansas Fuel Oil Co., Shreveport, La.	6,338.54	.....	6,108.92
*Mary Sue Allison, Brooklyn, N. Y.	.....	.....	9,418.78
*B. N. Altom, Tonkawa	.....	.....	8,226.68
American Refg. Properties, Wichita Falls, Texas	3,749.18	.....	5,185.80
*Walter Andrews, Weslaco, Texas	.....	.....	6,476.57
*Joe Abraham Estate and Fannie Abraham, Bristow	.....	.....	5,781.77
Armor Oil & Gas Co., Duncan	3,765.56	.....	5,345.66
Adams Royalty Co., Chicago, Ill.	63,138.75	.....	90,829.83
*Adams Royalty Co., Chicago, Ill.	.....	.....	6,827.55
*A. D. Adcock, Okmulgee (suspense)	.....	.....	5,177.52
American Oil Development Co., Pittsburgh, Pa.	5,288.19	.....	6,277.46
*Accumulative Royalties Corp., Tulsa	15,442.53	.....	20,858.78
Alma Petroleum Co., Oklahoma City	1,580.28	182,215	15,712.51
*H. N. and Ethel B. Andrews, Newkirk	.....	.....	6,162.52
*Richard B. Ayers, Flushing, N. Y.	.....	.....	3,295.57
American Drilling Co., Lindsborg, Kan.	.....	59,561	5,856.17
N. L. Amster, Ardmore	6,044.76	.....	7,451.80
*Atlas Royalties Corp., Tulsa	2,406.62	.....	3,336.70
Argo Oil Co., Denver, Colo.	240.86	.....	34,192.25
Argo Oil Co., Denver, Colo.	.....	16,036	927.17
Argo Oil Co., Denver, Colo.	.....	drip gas 1,096	55.52
*American Oil Royalties, Seminole Corp., Tulsa	.....	.....	4,184.96
American Indian Royalties, Inc., St. Louis, Mo.	.....	.....	24,292.48
*American Oil Ryalties, Osage Corp., Tulsa	.....	.....	2,041.60
*American Royalty Petroleum Co., Tulsa	2,164.39	.....	3,341.10
*Amerada Petroleum Corp., Tulsa	5,826.70	15,600	10,705.81
Amerada Petroleum Corp., Tulsa	870,993.00	1,319,317	1,240,931.09
*Atlantic Oil Prod. Co., Philadelphia, Pa. (suspense)	.....	.....	2,576.54
*Atlantic Oil Prod. Co., Philadelphia, Pa. (suspense)	.....	.....	2,468.00
*Atlantic Oil Prod. Co., Dallas, Texas	10,639.22	21,561	16,927.43
Atlantic Oil Prod. Co., Dallas, Texas	285,694.57	.....	499,561.88
Atlantic Oil Prod. Co., Dallas, Texas	.....	591,110	27,943.42
F. M. Aiken, Inc., et al, Tulsa	.....	.....	17,689.90
*Forest Anderson, Earlsboro	.....	.....	5,968.99

B

*T. J. Baker, Okmulgee (suspense)	.....	.....	5,177.53
*W. S. Billings, Enid	.....	.....	2,729.49
Bay State Oil & Gas Co., Kansas City, Mo.	9,734.30	.....	13,033.98
Beacon Oil Co., Bartlesville	5,144.64	.....	5,476.24
Berry Petroleum Co., Tulsa	11,176.42	6,540	14,985.48
*Mrs. Mary F. Barrett, Austin, Texas	1,827.22	.....	2,247.49
Bridwell Oil Co., Wichita Falls, Texas	12,482.50	.....	14,643.70
Bell Oil & Gas Co., Tulsa	4,348.71	.....	5,889.21
*L. J. Burkhalter, Blackwell	.....	.....	2,300.59
F. R. Billingslea, Tulsa	.....	.....	7,251.93
*Earle Berryhill, Sapulpa	.....	.....	2,744.87
*Frank A. Baker, Tulsa	.....	.....	14,465.19
*D. D. Banta, Tecumseh	.....	.....	4,562.19
*Bolene Refining Co., Enid	.....	.....	30,871.85
*W. D. Broyles, Stillwater	.....	.....	2,576.35
*Bermont Oil Co., Bristow	4,297.91	7,709	6,137.59
Britton-Johnson Oil Co., Tulsa	6,076.58	.....	5,485.86
*Frank Buttrum, Oklahoma City	.....	.....	13,860.03
*Black, Sivalls & Bryson, Inc., Bartlesville	1,562.60	4,369	2,088.38
C. D. Burns, Preston	.....	.....	7,031.79
*E. M. or Henrietta M. Billings, Enid	.....	.....	2,890.38
*E. B. Bechtel, Blackwell	1,598.29	1,539	2,263.28
*W. E. Brown Co., Tulsa	.....	.....	13,603.33
*I. L. Brame, Los Angeles, Calif.	.....	.....	2,514.85
*E. J. Beauk, Cushing	.....	.....	6,288.15
*G. M. Berry, Pawnee	.....	.....	6,191.52
*Thomas N. and Harriet V. Berry, Stillwater	.....	.....	10,455.65
*S. J. Brown, Duncan	.....	.....	2,084.72
Mabel Gray Breene, Tulsa	4,213.43	.....	5,075.69
Frank M. Breene, Trust Estate, Tulsa	5,741.95	.....	6,576.01
Baker & Strawn, Tulsa	6,479.64	.....	7,605.33
Braden & Moore, Tulsa	4,705.76	.....	5,837.81
*John H. Bennett, Ardmore	.....	.....	2,220.39
*Jesse Brown, Tulsa	.....	.....	5,861.65
James E. Berry, Stillwater	.....	.....	5,883.85
Thomas N. Berry, Stillwater	.....	.....	5,883.85
J. W. Bird and William Hanley, Bradford, Pa.	4,945.42	.....	5,844.68
*F. A. Beverlin, Wichita, Kan.	.....	.....	12,075.80
Bisett, Lytle and Gray, Tulsa	8,410.04	.....	9,583.84
Bryan Petroleum Co., Tulsa	13,130.97	34,791	23,448.69
*L. L. Bush, Chickasha	.....	.....	2,872.91
*G. H. and Annie Barker, Shawnee	.....	.....	2,776.30
*W. I. Barker, Ada	.....	.....	2,269.84
*J. G. Beard, J. L. Crump and S. I. Kolb, Duncan	5,157.08	12,567	7,424.80
Beard & Crump, Duncan	1,440.06	.....	8,436.98
J. G. Beard and S. I. Kolb, Duncan	1,959.93	1,970	13,195.32
*C. B. Billingson, Shawnee	8,002.56	.....	23,715.54
*John J. Bowater, New York City	.....	.....	6,770.35
C. E. Burlingame Corp., Bartlesville	4,588.08	.....	6,248.56
*S. W. Bates, Konawa	.....	.....	2,938.89
*Mrs. James Ballard, Cushing	.....	.....	4,261.80
*Hubert Barnum, Kaw City	.....	.....	2,947.24
*May Blasdel, Blackwell	.....	.....	2,493.41
*Beico Royalties, Inc., New York City	.....	.....	31,711.00
*C. C. Bomberger, Paden	2,131.06	.....	2,757.60
*J. F. Buck, Shawnee	.....	.....	2,500.20
O. V. Beck, Nocona, Texas	8,128.54	.....	9,366.54
E. M. Boring, Oklahoma City	12,189.87	5,381	14,863.66
George S. Bole, Tulsa	10,919.05	17,264	14,946.10
*George S. Bole, Tulsa	1,685.20	2,201	2,667.08
E. A. and Anna Bradley, Tulsa	5,449.31	.....	6,517.58
Bu-Vi-Bar Petroleum Corp., Tulsa	.....	1,980,423	14,511.72
Barbara Oil Co., Oklahoma City	7,090.69	71,213	14,249.07
*William Buck, Wetumka	.....	.....	2,389.23
*Bart Royalty Co., Bartlesville	6,564.15	.....	9,353.67
*A. O. Baker, Shawnee	.....	.....	3,930.50
*J. M. Bumpass, Duncan	.....	.....	2,112.91
*Brandenburg Bros., Norman	.....	.....	4,647.16
*John B. and Michael Brandenburg & Sons, Norman	.....	.....	39,244.84
Burke-Greis Oil Co., Tulsa	74,416.93	.....	113,213.11
*Burke-Greis Oil Co., Tulsa	.....	.....	18,336.62
Braman Oil Co., Inc., Tulsa	3,685.55	.....	5,110.85
Blackwell Oil & Gas Co., Cushing (no oil or gas given)	.....	.....	548,583.78
Barnsdall Oil Co., Tulsa	.....	1,347,971	79,221.06
Barnsdall Oil Co., Tulsa	1,287,275.94	.....	1,707,773.49
*Barnsdall Oil Co., Tulsa	1,967.98	.....	2,199.45
Barnsdall Oil Co., Tulsa (suspense)	.....	4,507,240	4,854.28
*Barnsdall Oil Co., Tulsa	2,660.47	.....	3,622.67
*Barnsdall Oil Co., Tulsa	.....	62,325	3,737.44
Barnsdall Refineries, Inc., Tulsa (suspense)	9,670.42	.....	12,436.74
*H. A. Born, Seminole	.....	.....	2,940.55
*Roy Buckner, Wewoka	.....	.....	2,497.38
*George M. Billings, Enid	.....	.....	3,248.54

C

*R. A. Cowden, Shawnee	.....	.....	5,364.75
*I. M. Clubb, Kaw City	6,501.77	.....	9,268.02
Cumberland Petroleum Co., Cleveland, Ohio	6,758.74	.....	6,577.49
*Cortex Oil Co., Tulsa	12,752.44	3,169	17,194.70
*William S. Cline, Newkirk	.....	.....	2,526.92
*Mrs. Clara Cherry, Shawnee	.....	.....	2,473.32
*T. R. Crane, Trustee, Mannford	.....	.....	5,515.71
*Chieftain Royalty Corp., Tulsa	4,246.53	1,311	6,008.61
*Margie, Retha and Leola Cherry by Dan Shepherd, Guardian, Shawnee	.....	.....	14,213.46
*Central Valley Oil Co., Cleveland, Ohio	.....	.....	3,889.27
J. G. Catlett, Tulsa	.....	.....	6,097.61
*Anna Elizabeth Cox, Ardmore	.....	.....	4,114.56
*Edwin B. Cox and Jake L. Hamon, Ardmore	.....	.....	26,220.42
*Central National Bank, Trustee under Trust Deed, Okmulgee	.....	.....	4,768.15
*Helen and Albert T. Campbell, Shawnee	.....	.....	16,241.90
Conservation Oil Co., Tulsa	7,604.02	.....	9,686.51
Cudahy Oil Co., Cleveland, Ohio	12,283.25	.....	13,143.84
G. W. Connelly, Caney, Kan.	.....	.....	7,992.69
*Continental Royalties Corp.-Royalties Syndicate, Inc., Tulsa	1,923.89	578	2,613.22
*Canadian Royalty Oil Co., London, Ontario	.....	.....	3,475.89
*Continental Pet. Royalty Corp., New York City	1,730.41	.....	2,476.19
*Columbia Royalty Co., Tulsa	2,095.91	.....	2,834.96
Central States Production Corp., Tulsa	.....	450,261	35,677.86
Clark and Cowden, Duncan	.....	.....	17,345.39
Caddo Oil Co., Tulsa	27,472.05	.....	32,990.79
*Joe Carter, Wewoka	.....	.....	5,184.14
J. S. Cosden, Inc. of Oklahoma, Fort Worth, Texas	27,460.51	.....	41,543.24
*Laura A. Clubb, Tulsa	.....	.....	9,288.31
*Herman D. Cornell, Trustee, Tulsa	.....	.....	2,937.65
Crews Estate, Enid	7,328.05	8,201	12,624.51
S. C. Canary, Tulsa	6,004.98	.....	6,896.11
*C. C. Cherry, Guardian, Maud	.....	.....	2,320.89
*C. C. Cherry and Laura Cherry, Maud	.....	.....	52,131.37
*R. C. Carpenter, Elizabeth, N. J.	.....	.....	2,981.22
*Colonial Royalties Co., Tulsa	.....	.....	6,162.95
Creo Oil Co., Tulsa	5,525.82	.....	6,360.22
*Central Commercial Oil Co., Tulsa	7,546.68	.....	11,717.72
Cotton Creek Oil Co., Wichita Falls, Texas	7,168.65	.....	8,682.09
*Dillard H. Clark, Jr., Ponca City	.....	.....	3,426.96
*J. D. Campbell, Seminole	.....	.....	18,080.37
*L. K. Cherry, Lindsay	.....	.....	5,610.11
*V. H. Cherry, Lindsay	.....	.....	8,074.54
*R. R. Culbertson, Maud	.....	.....	5,980.89
J. E. Crosbie, Inc., Tulsa	49,179.06	.....	72,992.11
Consolidated Gas Utilities, Oklahoma City	.....	216,869	14,786.33
*Central Oil Royalties, Inc., New York City	.....	.....	5,734.14
Cedar Gas Co., Bartlesville	.....	72,756	5,099.92
Champlin Refining Co., Enid	229,742.71	4,543	357,300.72
Consolidated P. L. Co., Sand Springs (suspense)	.....	.....	887.68
*Consolidated P. L. Co., Sand Springs (suspense)	.....	.....	2,218.55
Cities Service Gas Co., Bartlesville	.....	3,518,706	103,723.12
Coline Oil Co., Oklahoma City	47,798.82	.....	42,713.50
Comar Oil Co., St. Louis, Mo.	.....	584,107	32,411.77
Comar Oil Co., St. Louis, Mo.	627,254.19	.....	915,565.43
*Continental Oil Co., Tulsa	3,254.35	.....	4,505.57
Continental Oil Co., Denver, Colo.	101,468.72	71,036	135,470.86
Con inental Oil Co., Wichita Falls, Texas	12,487.23	31,419	17,157.21
Continental Oil & Refining Co., Independence, Kan.	4,440.51	.....	5,720.56
Carter Oil Co., Tulsa	2,718,569.31	.....	3,594,519.43
Carter Oil Co., Tulsa	.....	6,586,594	321,918.91
*Carter Oil Co., Tulsa (suspense) oil	.....	.....	92,059.25
*Carter Oil Co., Tulsa (suspense) gas	.....	.....	52,832.48

D

*J. C. Doneghy, Tulsa	12,227.37	.....	19,784.22
*B. F. Davis, Wewoka	.....	.....	17,379.70
*M. S. Douglass, Weleetka	.....	.....	2,952.59
*Euler Davis, Clearview	.....	.....	2,386.55
*C. E. Denny, Alma	.....	.....	2,183.66
*J. F. Darby, Muskogee	.....	.....	2,044.35
*J. H. Dickson, Tulsa	7,623.64	.....	10,403.51
*Annie Day, Earlsboro	4,814.82	.....	6,374.58
*J. F. Day, Earlsboro	2,407.41	.....	3,187.27
Delaware Consolidated Oil Co., Tulsa	.....	.....	47,158.47
*Delk Investment Corp., St. Louis, Mo.	2,017.95	1,589	3,300.42
*W. H. Desmond, Seminole	.....	.....	4,399.69
Darby-Lynde Co., Tulsa	12,106.49	47,206	20,690.24
*Doss Oil Royalty, Oklahoma City	.....	.....	16,699.16
*Denver Prod. & Refg. Co., Okmulgee	73,264.91	710,652	102,768.57
*Denver Prod. & Refg. Co., Okmulgee	17,516.18	.....	22,917.69
E. H. Daly and J. A. Swindler	2,634.75	5,173	5,851.60
J. J. Deaner, Okmulgee	10,256.08	.....	14,070.51
*J. J. Deaner, Okmulgee	1,471.44	.....	2,140.72
E. H. Daly and J. A. Swindler, Tulsa	3,634.75	5,173	5,851.60
*H. T. Douglas, Shawnee	.....	.....	13,332.57
*M. C. Davis, Maud	.....	.....	7,309.14
*O. H. Douglass, Okmulgee	.....	.....	5,180.69
*J. H. Dillard Estate by Vida Dillard, Ardmore	4,494.47	.....	5,528.07
*V. E. Dillard, Ardmore	.....	.....	4,574.39
E. D. Davis Oil Co., Oklahoma City	.....	.....	6,108.18
*Dickson Oil Royalty Co., Tulsa	3,249.07	.....	4,468.37
Dixie Oil Co., Inc., Shreveport, La.	76,561.65	547,225	136,976.64
Deep Rock Oil & Refining Co., Tulsa	27,934.68	162,292	39,243.78
Delmar Oil Co., Bartlesville	17,969.22	64,477	23,030.07
Delmar Oil Co., Bartlesville	ch gas	20,481	2,198.08
Darby Petroleum Corp., Tulsa	141,019.72	.....	181,019.72
Darby Petroleum Corp., Tulsa	.....	876,813	58,524.19
Devonian Oil Co., Tulsa	46,640.48	.....	63,848.78
Darby Lynde Co., Tulsa	12,106.49	.....	16,134.59
Darby Lynde Co., Tulsa	.....	47,206	4,555.65

E

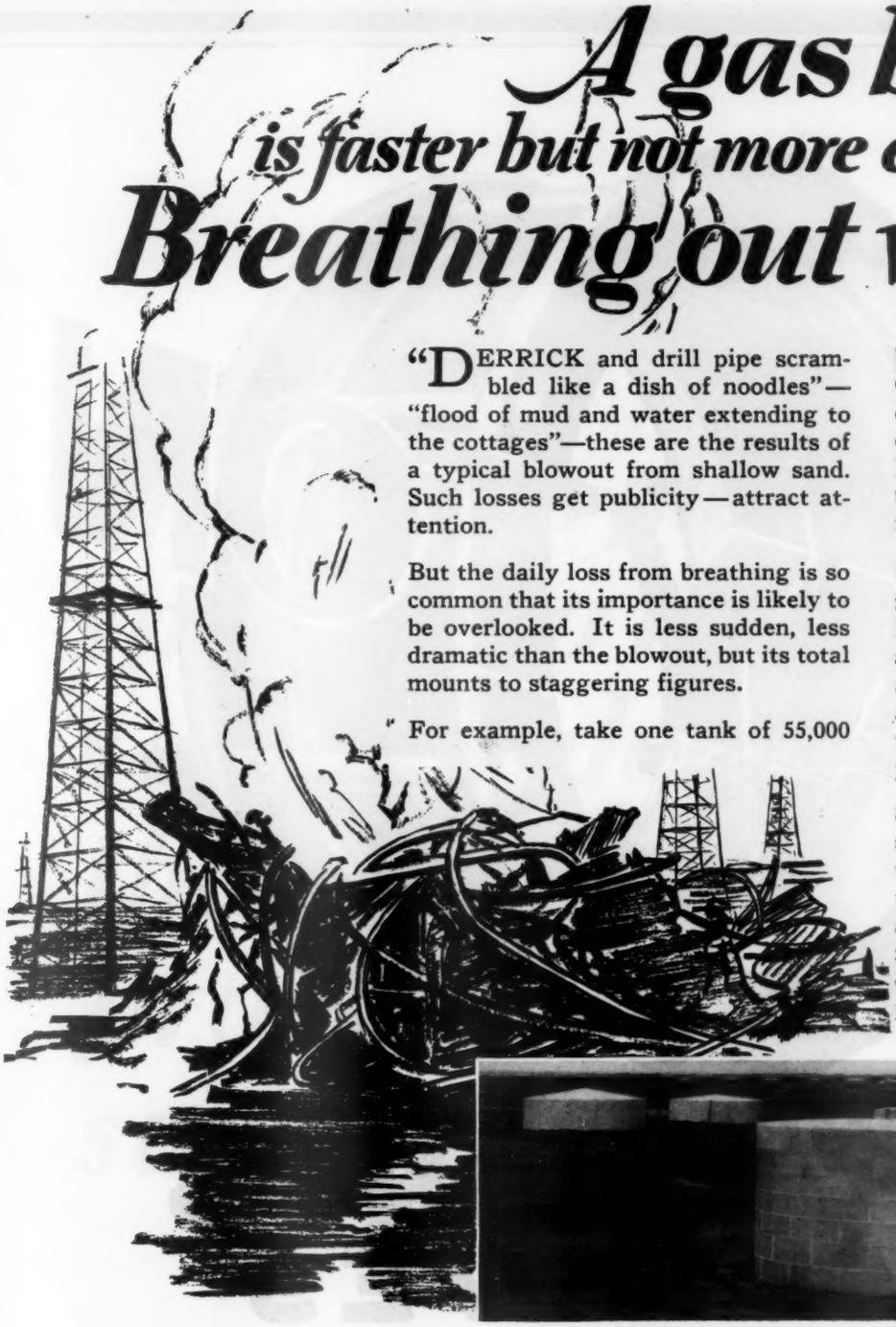
Elm Oil Co., Tulsa	8,018.25	8,908	9,661.62
*Elm Oil Co., Tulsa	2,351.42	17,342	2,823.35
*Elsawick, P. C., Lamont	.....	.....	5,530.76
*Enid Bank & Trust Co., Enid	.....	.....	5,086.63
*Lea R. Ellis, Tulsa	3,281.35	.....	4,446.74
Ellis Drilling Co., Wichita Falls, Tex.	4,613.51	.....	5,636.16
*W. H. Ellison, Asher	.....	.....	3,337.83
*Eastern Royalties Corp., New York, N. Y.	.....	.....	6,505.02
Eagle-Picher Lead Co., Henryetta	2,447.10	37,434	5,580.99
Emery Bros., Bradford, Pa.	1,145.64	.....	1,616.59
Lewis Emery, Jr., & Sons, Bradford, Pa	5,138.37	.....	4,982.19
*Equitable Royalty Corp., Oklahoma City	.....	.....	32,957.40
*T. T. Eason, Enid	1,407.02	.....	2,193.99

(Continued on next page)

Name and address—	No. of bbls.	M. ft. gas	Amount
Eagle Gasoline Co., Tulsa	.....	89,907	5,698.83
A. J. Erlewine et al, Wilson	6,177.19	.....	6,843.20
Elliott and Vensel, Tulsa	.....	.....	6,382.06
*Engineers Royalties, Inc., New York, N. Y.	.....	.....	3,697.28
Elliott and Smith, Tulsa	4,684.95	.....	5,474.46
Empire Oil & Refining Co., Bartlesville	.....	2,876	16,933.54
Empire Oil & Refining Co., Bartlesville	318,334.65	.....	422,987.65
*Empire Oil & Refining Co., Bartlesville	.....	127,220	2,413.03
*Empire Oil & Refining Co., Bartlesville	18,997.32	.....	27,847.60
*Empire Oil & Refining Co., Bartlesville (suspense)	14,107.86	7,423	20,753.71
Empire Oil & Refining Co., Bartlesville (suspense)	3,040.81	.....	3,071.54
*T. T. Eason, Enid	1,407.02	.....	2,193.09
F			
*Lena Fitzgerald, Blackwell	.....	.....	4,653.27
*J. P. Flanagan, Tulsa	.....	.....	11,338.82
*Wirt Franklin and Mary Cecile Gates by Liberty Natl. Bank, Trustee, Oklahoma City	1,812.56	456	2,209.94
D. C. Fitzgerald, Trustee, Ardmore	5,866.31	.....	6,934.55
*H. B. Folk, Sand Springs	2,647.79	.....	3,697.08
*D. C. Fitzgerald, Ardmore	1,948.43	.....	2,570.48
*Laura L. Fyke, Shawnee	.....	.....	15,786.59
Finance Oil Co., Gowanda, N. Y.	13,265.38	.....	15,923.67
*A. M. Fowler, Wewoka	.....	.....	4,136.89
*W. H. Franks, Seminole	.....	.....	13,670.76
*Rosie J. Franks, Seminole	.....	.....	8,373.28
Fern Oil and Gas Co., Yale	7,648.28	.....	9,892.62
*J. C. Fare, Wewoka	.....	.....	5,580.39
*James F. Foster, Clovis, N. Mex.	.....	.....	4,026.38
Fort Ring Oil & Gas Co., Ft. Worth, Tex.	.....	.....	10,961.28
*Fixico Minors—Addison Sessions, Gdn. in Okla., Okmulgee	1,353.15	.....	1,877.17
*G. W. Frazier, Kingfisher	.....	.....	7,960.09
Fox Royalty Co., Tulsa	5,120.49	.....	5,315.04
Fox Royalty Co., Tulsa	4,683.87	.....	4,435.17
Foster Oil Co., Tulsa	.....	.....	8,651.71
*W. W. Fondren, Houston, Tex.	1,834.00	.....	2,247.48
Foster and Davis, Inc., Bartlesville	8,709.27	.....	10,620.42
Foster Petroleum Corp., Bartlesville	229,484.79	.....	291,166.35
*Foster Petroleum Corp., Bartlesville	29,898.50	.....	39,636.75
D. W. Franchot and Co., Tulsa	35,484.80	51,884	45,587.60
H. B. Fell, Receiver, United Eight Oil Trust, Ardmore	12,580.72	.....	16,971.46
Fuhrman Petroleum Co., Okmulgee	.....	.....	359,794.92
*Alice Fleet, Ada	.....	.....	2,102.61
*Alice Fleet, Gdn., Ada	.....	.....	5,068.74
*John J. Fleet, Ada	.....	.....	2,137.11
*D. F. Fleet, Ada	.....	.....	20,814.66
*Faye K. L. Farwell, Chickasha	.....	.....	2,176.45
*K. C. Farwell, Chickasha	.....	.....	9,914.49
*Samual Freid Estate by Boyd B. Horsman, Sulphur	.....	.....	27,381.31
*E. E. Fenner, Alfred, N. Y.	.....	.....	2,203.34
Future Development Co., Tulsa	1,416.30	68,984	7,199.36
*Wirt Franklin, Ardmore	9,992.03	.....	12,039.41
Wirt Franklin Petroleum Co., Ardmore	182,387.70	.....	221,956.03
Wirt Franklin by Liberty Natl. Bank, Trustee, Ardmore	3,191.79	750,077	3,773.58
G			
*J. Wood Glass, Nowata	4,441.75	.....	5,258.10
*W. E. Grisso, Seminole	.....	.....	66,729.00
*W. D. Grisso, Seminole	.....	.....	5,954.77
*Walter H. Gant, N. B. Feagin and Knox L. Garvin, Ardmore	2,267.59	.....	2,691.45
*H. A. Geiser, Fillmore, N. Y.	2,662.07	.....	3,648.97
*L. L. Greer, Tulsa	.....	.....	2,340.22
*J. C. Green, Maud	.....	.....	6,648.44
*J. C. Gully, Okla. City	.....	.....	2,074.26
*W. H. Gammon, Maud	.....	.....	9,394.72
Samuel Gilbert estate by L. O. Sparks, Admr., Maud	.....	.....	20,308.46
*J. C. Gilbreath, Shawnee	.....	.....	5,980.91
*Guaranty Trust Co., Brooklyn, N. Y.	.....	.....	43,408.56
*Ethel Glenny, Blackwell	.....	.....	2,493.41
James H. Graham, Tulsa	4,847.29	.....	7,662.07
*J. M. Gillette, Tulsa	1,590.48	.....	2,129.74
*V. L. Goltry, Trustee, Enid	.....	.....	2,451.30
*B. M. Green, Wynnewood	.....	.....	5,367.44
*B. C. Getzelman, Algonquin, Ill.	.....	.....	24,115.10
*W. A. Graham, estate, Clarion, Pa.	.....	.....	2,447.47
Goldelline Oil Corp., Okla. City	8,178.91	.....	10,154.67
*General Royalties Corp., Enid	.....	.....	15,182.08
*Ed Gardner, Stroud	.....	.....	2,009.16
Galt-Brown Co., Ardmore	5,072.99	.....	6,760.42
*Myrtle Green and Myrtle Green, Gdn., Okla. City	3,592.85	7,773	4,908.06
*Florence N. Graham, Tulsa	.....	.....	6,359.16
*W. A. Gibson, Tishomingo	.....	.....	2,894.75
*Mary Goforth, Seminole (suspense)	.....	.....	10,415.94
Glidden Oil Corp., Tulsa	6,910.12	2,557	8,859.83
Gled Oil Co., Tulsa	16,194.70	.....	24,579.70
Glenora Refng. Co., Bristow	.....	.....	5,188.73
N. T. Gilbert and Jos. Glass, Receivers, Turman Oil Co., Tulsa	147,824.65	239,169	210,529.64
Glass and Harmon, Nowata	8,877.96	.....	10,822.99
M. E. Gaskill, Tulsa	16,535.31	27,582	23,086.58
R. F. Garland and Co., Tulsa	14,516.45	6,776	21,088.15
F. A. Gillespie and Sons Co., Tulsa	19,607.07	.....	20,310.91
Grimes and Gillespie, Tulsa	11,810.92	.....	15,473.43
Gates Oil Co., Ardmore	9,270.64	.....	9,832.18
Gardner Petroleum Co., Tulsa	19,678.01	.....	28,162.37
Gorton Trust, Cement	9,275.58	.....	11,093.11
Gilmer Oil Co., Ardmore	47,810.47	5,448	53,474.19
Gilcrease Oil Co., Tulsa	.....	.....	83,537.57
Gypsy Oil Co., Tulsa	2,625.09	.....	3,247.72
Gypsy Oil Co., Tulsa	.....	305,127	19,212.49
Gypsy Oil Co., Tulsa	.....	193,472	246,752.57
Gypsy Oil Co., Tulsa	3,555,497.34	.....	4,711,398.25
Gypsy Oil Co., Tulsa	.....	3,889,070	251,550.06
*Gypsy Oil Co., Tulsa	1,869.19	853	2,381.17
*Gypsy Oil Co., Tulsa (suspense)	23,177.15	.....	34,505.42
*Gypsy Oil Co., Tulsa (suspense)	.....	33,455	1,355.97
Gypsy Oil Co., Tulsa (suspense)	.....	11,818	1,088.18
Gypsy Oil Co., Tulsa (suspense)	10,503.66	.....	12,747.81
Gypsy Oil Co., Tulsa (suspense)	1,756.89	.....	2,294.37
Grimes and Gillespie, Tulsa	.....	.....	15,473.43
*J. D. Green, Maud	.....	.....	12,564.81
W. E. Gayer, Tulsa	6,452.02	.....	4,546.37
E. B. Grubbs and B. H. Young, Okmulgee	.....	.....	5,674.32
H			
Halsell and Son Oil and Gas Co., Vinita	3,756.03	25,134	5,585.71
*Ewing Halsell, Vinita	1,622.61	3,937	2,277.17
W. T. Hales, Okla. City	44,072.66	41,368	51,360.09
*W. T. Hales, Okla. City	3,231.01	857	4,081.94
*Roy Harris and Drotha Harris, Maud	.....	.....	6,605.84
Harland Oil Co., Wolco	14,613.97	56,814	18,278.41
*W. D. Hallum, Maud	.....	.....	9,561.35
Howard Petroleum Corp., Tulsa	74,911.69	.....	102,780.46
Henderson Oil Co., Marietta, Ohio	6,611.95	.....	7,236.43
*H. G. Hendricks, Atty-in-fact, O'Rourke Oil Co., Bristow	8,779.56	.....	9,333.36
*Irene Hembree by Bert Harris, Maud	.....	.....	26,016.82
*Alva Hembree by Bert Harris, Maud	.....	.....	26,016.82
*Una Hembre by Bert Harris, Maud	.....	.....	26,016.82
*Dora Hembree by Bert Harris, Maud	.....	.....	26,016.82
*Annie Hembree by Bert Harris, Maud	.....	.....	26,016.82
*W. N. Hudson, Miami, Fla.	.....	.....	5,454.66
*Mina B. Hudson, Miami, Fla	.....	.....	5,454.66
*Mesia Ham, Washington	.....	.....	6,748.26
*A. D. Horton, Agent, Hawarden, Iowa	4,638.94	.....	4,960.31
*J. C. Hartley, Agent, Garber	.....	.....	4,209.37
Highway Oil Refg. Corp., Tulsa	104,236.02	98,732	142,748.74
*S. B. Hammons, Seminole	.....	.....	4,238.16
*J. E. Hall, Holdenville	.....	.....	5,839.19
*Enoch M. Harris, Berwyn	.....	.....	2,422.39
*R. T. Harber, Seminole	.....	.....	2,802.16
E. P. Harwell, Tulsa	10,777.07	23,829	5,620.66
*Carl B. Haun, Blackwell	.....	.....	2,366.85
J. A. Hull Co., Tulsa	64,235.30	84,710	88,248.60
*G. W. Hilderbrandt, Okla. City	1,882.87	.....	2,600.21
*Nora Hernstadt, N. Y. City	3,697.12	.....	4,252.96
Hargrove Hudson, Tulsa	.....	.....	10,003.10
*Hargrove Hudson, Tulsa	.....	.....	11,341.01
*Hilltop Investment Co., St. Louis, Mo.	.....	.....	8,243.80
*P. J. Hill, Shawnee	.....	.....	6,090.45
*A. G. Hudspeth, Lexington	.....	.....	38,703.80
*H. D. Harn, Marshall	.....	.....	2,831.45
Home Stake Oil and Gas Co., Tulsa (suspense)	.....	.....	9,776.73
*Emma Gertrude Harman, Guthrie	.....	.....	4,238.81
*J. B. Hammons, Shawnee	.....	.....	15,140.33
Harris and Haun, Inc., Blackwell	.....	.....	18,033.83
*Binas Hostettler, Holdenville	.....	.....	2,475.34
*J. L. Hull, Seminole	.....	.....	2,393.88
*Healdton Oil and Gas Co., Enid	3,007.64	.....	4,393.47
*Healdton Oil and Gas Co., Enid	14,641.63	.....	22,564.44
*E. L. Harris, Trustee, Tulsa	.....	.....	16,298.13
O. R. Howard, Tulsa	79,431.04	.....	106,856.34
Homaokla Oil Co., Okla City	199,334.13	.....	224,972.99
*Homaokla Oil Co., Okla City	7,727.47	.....	8,630.86
Houston Oil Co. of Texas, Houston, Tex.	16,492.16	5,169	22,660.97
Home Gas Co. of Cushing, Cushing	11,496.52	159,705	27,183.33
*E. N. Horton, Ardmore	.....	.....	2,160.08
*Harris-Hays Co., Okmulgee	5,806.92	.....	8,926.52
*Hayner Royalty Corp., Tulsa	.....	.....	3,059.39
J. W. Henry, Tulsa	6,920.69	.....	10,447.82
*E. T. Hanlon, Tulsa	10,335.23	.....	15,823.32
*Cora Ella Harmon, Hennessey	.....	.....	3,419.33
*Max Hesslein, N. Y. City	.....	.....	4,698.79
*John F. Hayden, Tulsa	1,633.31	.....	2,016.13
*W. E. Harber, Seminole	.....	.....	9,721.54
*J. N. Harber, Seminole	.....	.....	3,085.10
T. J. Hughes Oil Corp., Cushing	.....	.....	5,029.43
Harold Petroleum Co., Blackwell	.....	.....	15,089.36
Hemlock Oil Co., Tulsa	17,686.90	.....	24,875.38
*Home-Stake Oil and Gas, Tulsa	.....	.....	141,120.61
Humble Oil and Refng. Co., Houston, Tex.	229,828.64	.....	245,220.61
Humble Oil and Refng. Co., Houston, Tex.	.....	241,620	18,148.03
Hewitt Mineral Corp., Ardmore	.....	.....	10,112.70
Healdton Petr. Co., Ardmore	.....	.....	11,958.25
J. E. Hosack, Blackwell	.....	.....	7,887.69
I			
*H. L. Ingram, Shawnee	.....	.....	3,295.57
*J. A. Ingram, Shawnee	.....	.....	41,831.76
*Harold M. Iseman, Okla. City	.....	.....	2,040.27
*Imperial Royalties Co., K. C., Mo.	.....	.....	200,126.18
A. B. & L. F. Ice and Ice Drilling Co., Tulsa	4,375.82	7,113	6,106.59
*Indian Royalty Co., Tulsa	111,497.21	.....	192,090.92
*Ingram Royalty Co., Shawnee	.....	.....	13,707.44
O. M. Irelan, Sapulpa	4,291.62	12,766	6,814.37
*Investors Royalty Co., Inc., Tulsa	86,526.84	.....	123,905.39
Imo Oil and Gas Co., Covington	.....	.....	11,199.55
Iron Mountain Oil Co., Tulsa	11,689.67	27,301	15,624.80
Indiana Oil and Gas Co., Tulsa	24,906.61	.....	30,119.38
Indiana Oil and Gas Co., Tulsa	.....	15,903	2,769.00
Indian Territory Illuminating Co., Bartlesville	55,284.78	24,616	78,126.69
Indian Territory Illuminating Co., Bartlesville	1,118,127.29	.....	1,489,664.73
Indian Territory Illuminating Co., Bartlesville	.....	2,014,372	181,547.13
Indian Territory Illuminating Co., Bartlesville	ch gas	3,502,520	75,264.32
Indian Territory Illuminating Co., Bartlesville	717,026.22	.....	970,599.41
Indian Territory Illuminating Co., Bartlesville	.....	2,014,372	181,547.13
Indian Territory Illuminating Co., Bartlesville	ch gas	3,502,520	75,547.13
Independent Oil and Gas. Co., Tulsa	18,849.09	.....	26,353.82
*Independent Oil and Gas. Co., Tulsa	5,531.13	.....	7,662.84
Independent Oil and Gas Co., Tulsa	2,239,994.24	2,823,480	3,153,162.20
*Indpendent Oil and Gas. Co., Tulsa	10,219.39	.....	15,618.82
Interocean Oil Co., Tulsa	35,104.22	.....	43,446.00
J			
*J. Edward Jones, N. Y. City	.....	.....	11,883.11
R. G. Jennings, Pittsburgh, Pa.	6,482.97	.....	9,154.58
E. H. Jennings Bros. Co., Pittsburgh, Pa.	4,052.59	718	5,072.66
John B. Jameson, Concord, N. H.	22,452.82	.....	33,119.01
*Randolph P. Jennings, Beverly Hills, Calif.	.....	.....	52,949.94
*J. T. Johnson, Sulphur	.....	.....	3,115.90
*U. S. Joines, Ardmore	.....	.....	2,238.44
R. C. Jones and Co., Inc., Cushing	.....	.....	13,523.29
*C. W. Johnston, Seminole	.....	.....	2,457.93
*Jarvis, Zollinger and Andrews, Trustees, Shawnee	.....	.....	10,745.09
Johnson Oil Refg. Co., Chicago, Ill.	4,328.35	.....	5,579.87
*B. F. Johnson and Mary Eva Johnson, Fayettville, Ark.	.....	.....	3,475.26
*Robert L. Jones, Bristow	2,614.03	65,496	9,041.23
*J. Alfred Johnson, Ardmore	.....	26,882	2,688.20
L. B. Jackson, Sapulpa	.....	.....	13,775.94
*L. B. Jackson, Sapulpa	.....	.....	3,941.84
*Florence Jenkins and Marjorie Walker, Tulsa	.....	.....	2,066.08
*C. O. Johnson and Geo. C. Pendleton, Rec., Durant	.....	.....	5,695.14
Josey Oil Co., Tulsa	160,957.52	172,801	247,553.88
*Willard Johnston, Shawnee	.....	.....	5,086.81
K			
Kirk Oil Co., Ardmore	5,027.80	17,834	6,040.48
*Helene Walker King, Orange, Calif.	.....	.....	16,386.32
*Helene Walker King, Gdn., Orange, Calif.	.....	.....	4,942.72
*M. E. Killingsworth, Seminole	.....	.....	18,145.58
*Geo. W. Kinney, Tulsa	1,889.86	.....	2,590.20
*J. W. Krummi, Okemah	.....	.....	3,196.31
*Nettie Klein, N. Y. City	.....	.....	19,242.26
*Mark Kanner, N. Y. City	.....	.....	16,297.32
*J. D. Kimmel, Tulsa	.....	.....	2,260.58
Kreola Oil Co., Ardmore	.....	.....	6,436.00
*Emma B. Kennedy and Trustee, Okemah	.....	.....	4,964.65
Kreola, Colcord and Commerce, Ardmore	.....	.....	8,556.57
*Sarah J. Knotts, Stillwater	3,195.40	.....	4,980.09
*L. R. Kershaw, Muskogee	.....	.....	4,433.58
*C. C. Kimble, Beggs	.....	.....	4,933.11
King Royalty Co., Wichita Falls, Tex.	9,785.97	.....	11,897.05
*I. and L. Keck, Nocona, Tex.	.....	.....	2,870.36
Chas. E. Knox, Enid	3,872.23	5,530	6,527.89
Kay and Kiowa Oil Co., Tulsa	5,680.75	14,755	9,161.76
Kay Co. Gas Co., Ponca City	.....	279,048	29,433.60
Kay Oil Co., Blackwell	26,656.28	.....	28,715.31
*R. R. Kisner, Enid	.....	.....	2,140.70
*Minnie L. Kisner, Enid	.....	.....	2,140.70
Karcher-Henry, Tulsa	119.81	131,980	10,709.31
*W. L. Kistler, Inc., Tulsa	11,192.51	.....	15,904.53
W. L. Kistler, Inc., Tulsa	249.75	.....	32,561.00
*Frank Knappenburger, Phoenix, Ariz.	.....	.....	4,491.58
Kingwood Oil Co., Okmulgee	66,799.36	43,211	97,723.58

(Continued on next page)

A gas blow out is faster but not more expensive than Breathing out vapor



"DERRICK and drill pipe scrambled like a dish of noodles"—"flood of mud and water extending to the cottages"—these are the results of a typical blowout from shallow sand. Such losses get publicity—attract attention.

But the daily loss from breathing is so common that its importance is likely to be overlooked. It is less sudden, less dramatic than the blowout, but its total mounts to staggering figures.

For example, take one tank of 55,000 barrels capacity full of average Mid-Continent crude. In a year's time the evaporation loss from this tank has cost its owner from $1400 to $1680. Multiply that loss by the number of tanks you have in service and compare it with the cost of a gas blowout.

Evaporation is not only a big loss. It is a preventable loss. A Wiggins Breather Roof on the tank referred to above will stop this needless waste and pay for its added cost in less than a year. During the rest of the life of that tank you are adding the saving to your assets.

Similarly, Wiggins Floating Roofs stop evaporation losses on working tanks, which are even greater than those from standing storage. There are conditions under which one month's operation pays the added cost of the Floater. Ask for estimates for your tanks.

Illustration shows group of 80,000-barrel tanks equipped with Wiggins Breather Roofs.

STOP EVAPORATION LOSSES

with WIGGINS BREATHER ROOFS

CHICAGO BRIDGE AND IRON WORKS

DALLAS	3341 Magnolia Bldg.	DETROIT	1514 Lafayette Bldg.
NEW YORK	3147 Hudson Terminal	PHILADELPHIA	1615 Jefferson Bldg.
CLEVELAND	2204 Union Trust Bldg.	SAN FRANCISCO	1054 Rialto Bldg.
CHICAGO	2128 Old Colony Bldg.	HAVANA, CUBA	Apartado 2507

O&GJ 5-30 Gray

COUPLINGS
SLEEVES
CLAMPS
FITTINGS

THE
NATIONAL
COMPA

There is no pipe line specification or service demand that a **DAYTON** *product cannot successfully meet.*

THE
AL SUPPLY
IPANIES

Name and address—	No. of bbls.	M. ft. gas	Amount
Kewanee Oil and Gas Co., Titusville, Pa.	306,729.68	513,125	465,472.14
Keener Oil and Gas Co., Tulsa	42,319.61	7,713	48,412.79
*Keener Oil and Gas Co., Tulsa	1,169.26	9,090	2,042.10
John L. Kirkland and Son, Tulsa	4,990.03	.....	5,473.16
L			
Lewis Production Co., Pittsburgh, Pa.	119,056.73	.....	172,507.75
*B. D. Lack Co., Okla. City	.....	.....	13,309.92
*Matsye B. Lack, Okla. City	.....	.....	9,818.67
*B. D. Lack, Okla. City	.....	.....	4,715.39
?Nites Linn, Okla. City	.....	.....	2,159.39
*Ivan Linn, Oklahoma City	.....	.....	2,159.39
C. H. Lebow, Tulsa	7,590.26	.....	10,835.33
*C. H. Lebow, Tulsa	1,778.55	.....	2,319.80
*E. D. Lindley, Alex	.....	.....	45,249.11
*Joseph C. Looney, Wewoka	2,036.29	.....	2,650.62
*Wade Lewis, Harlan, Iowa	3,001.13	.....	4,484.18
A. M. Landon, Independence, Kans.	6,245.35	5,024	7,751.03
Lawton Corp., Oklahoma City	1,389.40	.....	5,143.30
*John Lahman, Altus	.....	.....	4,594.29
*La Force and Ferguson, Limon, Colo.	.....	.....	4,793.67
*Harry Lambing, Newkirk	.....	.....	2,795.79
Little Fay Oil Co., Tulsa	7,301.36	6,633	7,982.83
*W. S. & Amy Livingston, Seminole (suspense)	.....	.....	5,212.77
*W. T. & Lylus A. Laughlin, Oklahoma City	.....	.....	4,022.30
Lesh and McCall, et al, Nacona, Tex.	18,235.57	.....	12,035.48
*J. W. Linn, Shawnee	.....	.....	2,159.39
Little Nick Oil Co., Chickasha	.....	.....	31,895.97
C. K. Lambert and J. A. Spicer, Okmulgee	7,411.85	.....	10,511.49
Lima Oil and Gas Co., Bartlesville	2,370.43	581,739	50,410.71
J. H. Long, Duncan	.....	.....	7,749.31
Link Oil Co., Tulsa	15,849.14	14,601	20,982.48
*Park B. Lamerton, Tulsa	1,464.18	.....	2,072.26
Lone Eagle Oil and Gas, Duncan	7,573.37	.....	10,088.70
LeFlore County Gas and Electric Co., Poteau	.....	.....	10,370.61
T. E. Laselle, Ada	15,638.26	.....	20,069.22
*Nancy J. Laughlin, Cushing	.....	.....	2,168.75
*Andrew W. Loebl, N. Y. City	.....	.....	2,403.10
*Lotus Oil Co., K. C., Mo.	1,631.23	256,639	2,355.64
Laurel Oil and Gas Co., Philadelphia, Pa.	187,609.72	38,120	244,953.91
*Liberty Royalties Corp., Tulsa	16,949.60	.....	23,454.49
*Lilac Oil Co., Tulsa	2,758.22	.....	3,966.06
Louisiana Oil Refng. Corp., Shreveport, La.	91,394.00	168,953	95,193.34
Lone Star Gas Co., Dallas, Tex.	9,588.93	.....	9,685.78
Lone Star Gas Co., Dallas, Tex.	.....	71,753	5,378.68
Larger Oil Co., Bartlesville	3,622.45	7,934	5,427.74
M			
*W. C. McBride, Inc., St. Louis, Mo.	.....	.....	26,147.84
*W. F. McDaniel, Blackwell	.....	.....	3,093.03
*J. H. McBirney, Tulsa	.....	.....	2,226.77
*S. H. McKee, Tonkawa	.....	.....	7,509.61
*I. R. McQueen, Oklahoma City	5,299.42	.....	7,315.89
*R. L. McGee, Asher	.....	.....	16,840.38
*Eli B. McCully, Hennessey	.....	.....	3,757.71
*Nellie McGee, Asher	.....	.....	5,452.31
*J. M. MacDonaugh, N. Y. City	.....	.....	2,497.08
*Charles McCully, Hennessey	.....	.....	3,757.76
*Emma McCully, Hennessey	.....	.....	357.76
*McRoberts Royalty Co., Tulsa	.....	.....	5,302.09
*Floyd McCaughtry, Chickasha	.....	.....	4,918.67
McGraw Oil Co., Tulsa	18,700.58	20,132	22,949.02
*Carrie L. McClue, McAlester	.....	.....	5,865.97
*Mary B. McAlester, McAlester	.....	.....	5,965.97
McMan Oil and Gas Co., Tulsa	49,361.10	.....	70,771.48
*Henry MacDonald, N. Y. City	.....	.....	2,140.62
McGinley-Sigler Co., Ft. Worth, Tex.	16,590.81	.....	11,097.29
*Jodie McGee, Norman	.....	.....	4,705.04
C. L. McMahon and C. L. McMahon, Inc., Tulsa	34,878.47	.....	52,326.83
*C. L. McMahon and C. L. McMahon, Inc., Tulsa	8,449.36	.....	12,077.94
H. W. McGill, Adm. estate of E. Davis, Ardmore (Paid under Protest)	82,630.90	.....	109,203.77
*J. H. Maxey, Oklahoma City	.....	.....	2,615.41
*R. J. Metcalf, Ft. Worth, Tex.	.....	.....	3,099.88
Malernee Oil Co., Oklahoma City	4,106.57	1,532	7,113.72
Jennie Mullendore, Cleveland	.....	.....	12,794.58
E. C. Mullendore, Cleveland	.....	.....	25,726.68
*E. C. Mullendore, Cleveland	.....	.....	4,149.51
Marquette Oil Co., Tulsa	11,515.39	205,554	32,197.44
J. F. Murphy, Sapulpa	.....	.....	6,798.96
*Sophia S. Mussellem, Muskogee	.....	.....	5,407.48
*Midland Royalty Corp., N. Y. City	.....	.....	6,336.02
Mid-Continent Royalties, Inc., N. Y. City	.....	.....	2,612.61
Magee and Stipe, Electra, Tex.	5,465.49	.....	7,579.01
Dudley D. Morgan, Tulsa	.....	.....	12,335.54
*J. F. Martin, Marlow	.....	.....	3,115.29
*Million and Thomas, McAlester	3,707.91	.....	4,265.22
*Alice Clark Myers, Santa Fe, N. Mex.	.....	.....	3,436.96
J. H. Markham, Jr., Tulsa	93,105.90	.....	126,066.06
*J. H. Markham, Jr., Tulsa	2,112.50	.....	3,028.78
Mudge Oil Co., Pittsburgh, Pa.	18,360.29	.....	12,499.60
*Morris National Bank, Morris	.....	.....	3,281.48
D. B. Mason, Tulsa	10,808.47	.....	11,582.18
*C. E. Morgan, Holdenville	.....	.....	5,753.00
M. B. Morgan & Joe Paul, Trustee, Holdenville	.....	.....	5,437.93
Marileen Oil and Gas Co., Blackwell	7,060.58	9,179	9,740.46
*Frank Meadors, Jr., Wetumka	6,832.78	.....	11,166.81
F. W. Merrick, Inc., Ardmore	18,660.38	.....	20,866.09
F. W. Merrick and R. W. Coe, Trs., Ardmore	9,512.16	.....	11,078.18
Ward S. Merrick, Ardmore	3,982.51	.....	4,516.11
*J. Read Moore, Wewoka	.....	.....	3,504.11
Maud Oil and Gas Co., Oklahoma City	.....	.....	38,966.77
*G. C. Mayhue, Seminole	.....	.....	3,651.76
*W. E. Mayhue, Ada (suspense)	.....	.....	3,651.76
*E. L. Mayes, Tulsa	.....	.....	82,345.18
F. D. Misener, Tulsa	7,654.59	366	8,763.10
E. R. Minshall, Tulsa	3,483.39	9,864	5,511.58
Murphy Oil Co. of Pa., Philadelphia, Pa.	4,741.76	.....	5,344.49
Mul-Berry Oil Co., Cushing	.....	.....	54,739.25
*B. F. Melton, Duncan	2,227.42	2,561	4,922.20
*Annie Meyer, Sapulpa	.....	.....	2,085.88
Clint Moore estate, Tulsa	19,195.46	.....	27,031.50
Madden & Madden, Tulsa	19,460.83	.....	25,671.06
*Frank W. Miller, Trustee, Warren Royalties, Newark, N. J.	.....	.....	5,732.51
*J. W. Maines, Ada	.....	.....	2,130.64
*Major Oil Co., Okmulgee	.....	.....	8,936.17
Midco Oil Corp., Tulsa	14,594.20	.....	19,610.55
Meridian Gas Co., Dallas, Tex.	.....	285,010	23,424.24
Margay Oil Corp., Tulsa	152,360.32	.....	202,196.50
Marland Production Co., Ponca City	414,172.93	1,364,880	635,180.82
*Mid-Continent Petr. Corp., Tulsa	6,014.26	38,096	6,383.35
Mid-Continent Petr. Corp., Tulsa	1,275,960.31	.....	1,652,542.51
Mid-Continent Petr. Corp., Tulsa	.....	1,775,631	81,307.85
Mid-Kansas O & G Co., Findlay, Ohio	.....	262,650	16,525.57
Mid-Kansas O & G Co., Findlay, Ohio	330,318.93	.....	442,553.65
Magnolia Pet. Co., Dallas, Tex.	3,873,039.61	.....	4,886,808.86
Magnolia Pet Co., Dallas, Tex.	.....	5,257,371	254,636.65
*Magnolia Pet. Co., Dallas, Tex.	85,755.52	.....	93,618.73
*Magnolia Pet. Co., Dallas, Tex. (suspense)	28,493.89	.....	39,817.07
*Magnolia Pet. Co., Dallas, Tex. (suspense)	8,950.72	19,042	12,813.94
Magnolia Pet. Co., Dallas, Tex. (Pd. under Protest)	41,927.15	41,945	60,269.56
Magnolia Pet. Co., Dallas, Tex. (Pd. under Protest)	2,926.80	5,239	4,291.88
*McMahan Royalty Co., San Antonio, Tex.	.....	.....	3,496.21
*Monarch Royalty Co., Kansas City, Mo.	.....	.....	52,262.61
Minnehoma Oil and Gas Co., Tulsa	93,305.96	.....	124,283.28
Minnehoma Oil and Gas Co., Tulsa	.....	158,179	10,642.58
*Omer McKown and Son, Maud	.....	.....	3,552.57
Miller Bros. 101 Ranch, Marland	.....	.....	9,881.84
N			
National Refining Co., Cleveland, Ohio	.....	.....	9,788.57
W. C. Norris, Tulsa	.....	.....	10,367.03
*W. G. Newkham, Maud	.....	.....	2,121.06
Walter Newstadt, Ardmore	.....	.....	5,607.36
*R. L. Nelson, Webb City, Mo.	.....	.....	4,018.89
*R. B. North, Blackwell	.....	.....	2,018.89
*Eva E. Noble, Ardmore	.....	.....	3,947.61
*Hattie E. Noble, Ardmore	.....	.....	2,960.73
Norwood Oil Co., Tulsa	7,766.34	.....	8,966.29
Nowata Oil & Refining Co., Tulsa	7,790.59	29,544	9,682.29
*Norvell, A. S., Wewoka	.....	.....	2,670.02
*Nester Oil Co., Alex	.....	.....	2,404.55
New England Oil & Pipe Line, Boston	33,863.90	.....	57,590.24
Marjorie C. Nichlos, Chickasha	.....	.....	3,349.19
*Marjorie C. Nichlos, Chickasha	.....	.....	2,733.39
John B. Nichlos, Chickasha	.....	.....	5,751.19
*New York Petroleum Royalty Corp, New York City	5,192.89	.....	7,408.04
National Oil & Development Co., Tulsa	7,730.97	.....	8,642.58
*G. A. Nichlos, Oklahoma City	.....	.....	2,521.40
National Union Oil & Gas Co., Blackwell	6,397.75	.....	9,184.63
*R. H. Nicholson, Oklahoma City	.....	.....	2,318.60
O			
*Oklahoma Royalty Co. of Canada, Toronto, Canada	.....	.....	123,609.32
*Sarah Blanche Orwig, Wewoka	.....	.....	2,198.71
*S. S. Orwig, Wewoka	.....	.....	10,643.34
Oil & Gas Royalties, Inc., Toronto, Canada	.....	.....	2,979.27
*M. S. Owen, Cushing	.....	.....	4,423.23
Ohio-Osage Oil Co., Tulsa	10,622.55	.....	16,138.17
*W. B. Osborn, Ada	.....	.....	4,156.86
*Orit Securities Corp., New York City	.....	.....	3,967.63
Olean Petroleum Co., Bristow	3,585.89	.....	19,990.12
Oklahoma Public Service Corp., Cedar Rapids, Iowa	.....	.....	21,345.20
*Oil State Petroleum Co., Enid	6,133.74	.....	8,474.96
Oil State Petroleum Co., Enid	5,825.08	.....	8,052.45
Oklahoma Power & Water Co., Sand Springs	.....	154,114	15,411.40
W. G. Obins and H. C. Weber, Bartlesville	3,775.50	.....	4,172.59
Ona Oil Co., Blackwell	.....	.....	40,810.03
Ogg Petroleum Co., Muskogee	5,487.91	.....	6,621.30
*Oklahoma-Gulf Royalty Corp., Tulsa	.....	.....	3,249.50
*Ohio Fuel Supply Co., Columbus, Ohio	17,411.62	.....	25,414.02
Osage Gas Producing Co., Independence, Kans.	298.75	542,190	49,157.74
Oklahoma Natural Gas Corp., Tulsa	.....	733,815	61,945.83
Oklahoma Gas Utilities Co., Chickasha	.....	.....	82,510.35
*Mrs. B. Ollie O'Dell, Richmond, Calif.	.....	.....	10,978.71
O'Rourke Oil Co., Bristow	.....	.....	9,333.36
P			
Petroleum Co. and M. H. Mosier, Tulsa	9,640.97	14,423	12,384.25
W. B. Pine, Okmulgee	80,959.82	.....	109,650.60
W. B. Pine, Okmulgee	761.25	106,698	9,936.07
*Lillie M. Priboth, Blackwell	1,676.30	.....	2,424.39
*F. F. Priboth, Blackwell	1,656.75	.....	2,398.75
*Peerless Oil & Gas Co., Indiana, Pa.	10,304.90	.....	15,253.50
Peerless Oil Producing Co., Tulsa	10,344.16	.....	15,431.99
Pawhuska Oil & Gas Co., Pawhuska	.....	80,461	11,949.23
*John Panos, Oklahoma City	.....	.....	2,200.10
*Mable Dale Potts, Yale	3,988.89	.....	5,870.27
W. G. Phillips and J. B. Milam, Chelsea	29,107.80	1,187	33,855.40
*O. E. Powell, Maud	.....	.....	7,294.16
W. B. Pine, Okmulgee	21,258.50	.....	26,161.99
W. B. Pine and Phillips Petroleum Co., Okmulgee	35,388.18	.....	49,880.50
*O. J. Pharoah, Henryetta	.....	.....	6,760.20
*Charles Pfile, Oklahoma City	.....	.....	2,131.66
*Provident Royalty Corp., Tulsa	.....	.....	2,473.72
*Petroleum Royalty Corp., Tulsa	5,257.12	.....	7,461.94
*Provident Royalties Corp., Tulsa	21,368.04	.....	30,074.01
Phoenix Oil Co., Pittsburgh, Pa.	28,931.66	.....	40,747.99
Papoose Oil Co., Tulsa	90,244.46	49,007	121,927.69
Pierce Petroleum Corp., Sand Springs	17,712.96	.....	20,419.77
Producers Oil Co., Tulsa	15,197.32	.....	20,572.57
Producers & Refiners Corp., Tulsa (suspense)	8,866.58	.....	12,176.84
Producers & Refiners Corp., Indepndence, Kans	.....	257,733	19,808.53
Producers & Refiners Corp., Independence, Kans.	278,684.12	.....	249,381.81
Prairie Oil & Gas, Independence, Kans.	3,988,914.80	.....	5,351,809.35
Prairie Oil & Gas, Independnce, Kans.	.....	721,521	55,809.06
Prairie Oil & Gas, Independence, Kans.	ch gas	3,055,679	222,407.75
Prairie Oil & Gas, trustee, Independence, Kans.	3,581.59	.....	4,345.06
Phillips Petroleum Co., Bartlesville	647,154.88	.....	921,451.38
Phillips Petroleum Co., Bartlesville (suspense)	3,552.75	.....	6,450.15
Pure Oil Co., Chicago, Ill.	2,751,582.11	.....	3,829,292.57
Pure Oil Co., Gasoline Division, Chicago, Ill.	.....	715,969	36,766.79
Page Oil Syndicate, Tulsa	.....	.....	10,621.60
*Petroleum Rights Corp., New York City	.....	.....	17,453.96
Pawnee Oil Prod. Co., Tulsa	.....	.....	5,540.96
Plymouth Petroleum Co. et al, Tulsa	8,933.61	.....	11,284.72
*Miller Brothers, 101 Ranch Trust, Marland	.....	.....	9,881.84
*Grace Payne, Okmulgee	1,561.25	.....	2,619.49
*W. H. Pomeroy, Tulsa	.....	.....	2,930.86
*J. A. Patterson, Wewoka	.....	.....	2,268.12
*Fred E. Pettit, Los Angeles, Calif.	.....	.....	2,156.97
*Producers Royalty Corp., New York City	.....	.....	14,849.72
*S. T. Palmer, Okemah	.....	.....	5,384.99
*Pepper Oil & Gas Co., Oklahoma City	.....	.....	25,477.72
*M. F. Powers, Tulsa	10,165.00	.....	13,871.32
Pyramid Oil Co., Winchester, Ky.	5,848.69	.....	6,604.17
*John Perry, Tulsa	.....	.....	5,675.56
*Waite Phillips, Tulsa	1,942.19	.....	2,882.00
*George C. Probst, Tulsa	4,786.43	.....	6,508.06
Producers Syndicate, Sayre	.....	160,095	8,004.76
George L. Pace, Wichita Falls, Tex.	9,404.29	.....	11,820.94
Carr Peterson, Haskell	.....	120,021	12,002.23
Plains Petroleum Co., Inc., Tulsa	10,346.28	13,237	14,449.50
Privett Drilling Co., Maramec	2,587.10	.....	10,647.57
*Perpetual Royalty Corp., Tulsa	.....	.....	11,751.84
Perkins & Cullum, Wichita Falls, Tex.	7,302.44	.....	9,047.33
*B. G. Patton, Okmulgee	.....	.....	3,649.41
Petroleum Co., Tulsa	4,794.14	5,562	6,100.53
*N. J. and Alpha Price, Okemah (suspense)	.....	.....	3,514.24
Paragon Oil Co., Tulsa	4,895.33	2,686	6,641.79
Panther Oil & Gas Co., Oklahoma City	.....	.....	10,251.80
Paraffine Oil Co., Houston, Tex.	7,178.00	.....	7,881.73
Pennok Oil Corp., Tulsa	27,609.34	41,696	40,485.04
*Petroleum Royalties Co., Tulsa	.....	.....	134,648.63
Petroleum Producers Co., Wichita Falls, Tex.	10,464.68	.....	14,014.78
Pioneer Petroleum Co., Tulsa	13,600.29	.....	15,415.61
Pauline Oil & Gas Co., Oklahoma City	6,378.83	6,119	8,497.78
Q			
*C. P. Quinlan, Tulsa	6,616.18	79,285	9,216.03
Quinton Spelter Co., Quinton	.....	.....	10,007.11
Quinton Relief Oil & Gas, Quinton	.....	148,245	8,894.73
*John Quimby, Montebello, Calif.	.....	.....	5,307.44
R			
Red Bank Oil Co., Tulsa	8,119.83	2,669	10,233.63
*C. Lothrop Ritchie, Philadelphia, Pa.	.....	.....	2,165.51
*Leslie Rogers, Tulsa	4,315.41	.....	6,032.28
*J. W. Rainey, Shawnee	.....	.....	27,234.50
*Eulahmae Reed, Wewoka	.....	.....	4,443.09
*L. E. Regan, Tecumseh	.....	.....	3,653.48

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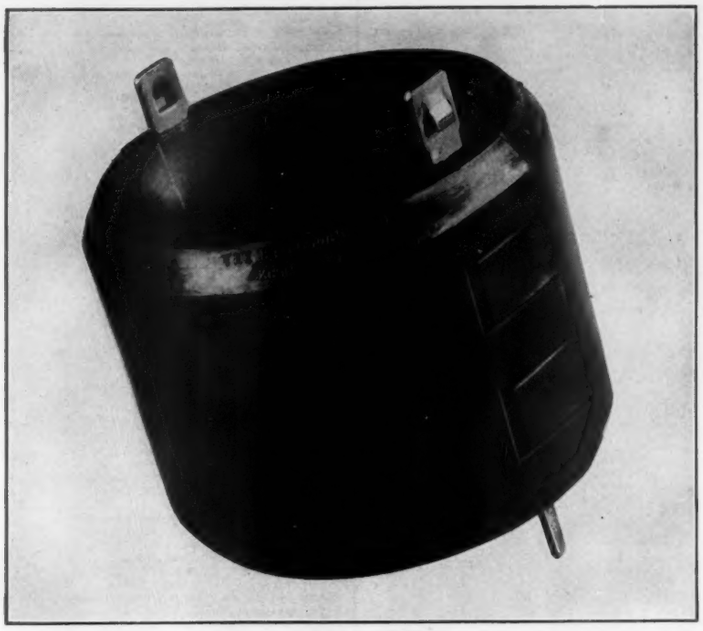


U. S. Patents
No. 1,416,988, May 23, 1922
No. 1,510,804, Oct. 7, 1924

This rubber casing guard saves over 25% in power

Goodrich Grip-Tite Casing Guard eliminates friction between drill pipe and casing

GOODRICH Grip-Tite Casing Guards are piling up new efficiency records in the oil fields, and there's good reason for it.

The experience of Goodrich in adapting rubber to the needs of the oil industry has now led to the development of Goodrich Grip-Tite Casing Guards.

Grip-Tite Casing Guards eliminate friction completely, and are self-lubricated by the surrounding mud and water. They increase the speed of deep well drilling, at the same time saving from 25 to 33 per cent in power.

Grip-Tite Casing Guards form a complete bearing of resilient, abrasion-resisting rubber around the drill pipe.

Highflex belts outperform old type belts on hard drives

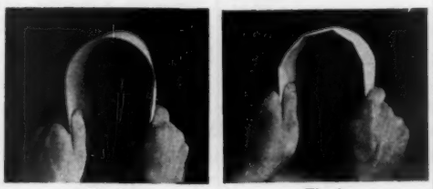
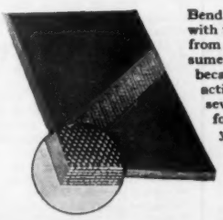


Fig. 1 Fig. 2

You can prove the Highflex Principle this easy way



Bend a pad of paper or booklet with the fingers. When viewed from the edge (fig. 1) it assumes a natural uniform curve because of the unhampered action of the plies. Now, if several layers of paper are folded and then bent (fig. 2), you instantly see how the fold distorts the curve and impedes the free movement of the individual layers.

There are no metal-to-metal contacts. They are an exclusive Goodrich product.

Grip-Tite Casing Guards can be applied, without special tools, by the driller himself, and when once applied will not shift their position on the drill pipe.

Write for full particulars to The B. F. Goodrich Rubber Co., Est. 1870, Akron, O., or the branch nearest you.

Oil Field Branches

PACIFIC GOODRICH RUBBER CO.:

1386 East 7th St., Los Angeles, Cal.
650 Second St., San Francisco, Cal.
2625 Walnut Street, Denver, Col.

THE B. F. GOODRICH RUBBER CO.:

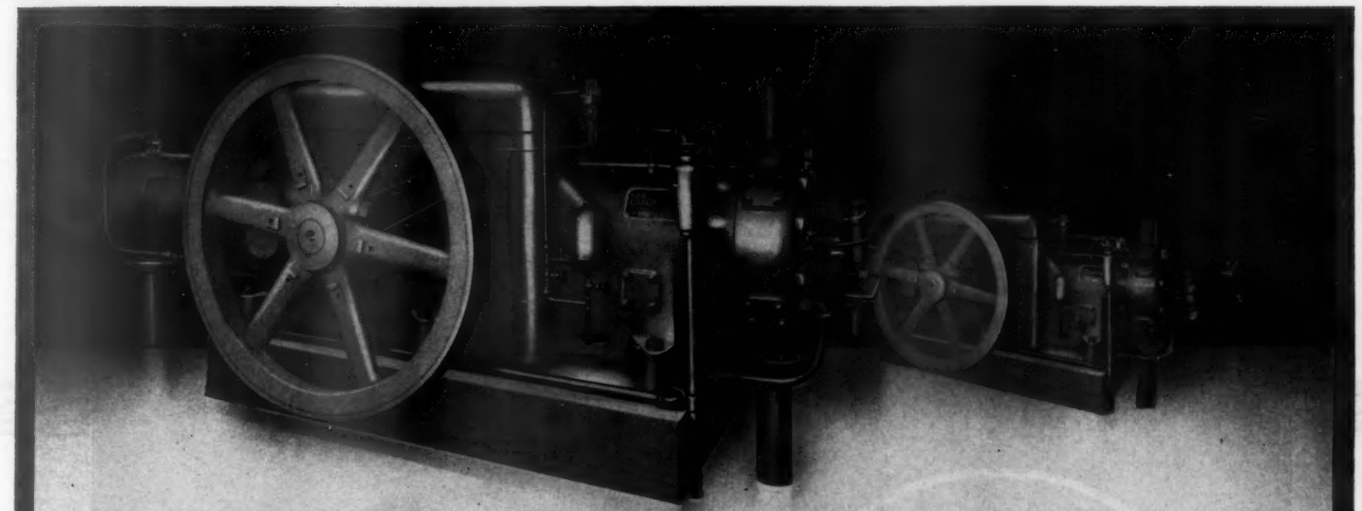
1201 Young Street, Dallas, Texas.
2422 Broadway, Kansas City, Mo.
285 S. Peters St., New Orleans, La.
and other principal cities.

Goodrich

Name and address—	No. of bbls.	M. ft. gas	Amount
Regal Oil & Gas Co., Tulsa	.....	.....	15,007.67
*Rena Royalty Co., Tulsa	5,857.92	.....	8,598.24
*Rena Royalty Co., Tulsa	23,119.68	.....	34,112.51
*Reynolds Oil & Royalty Co., Okmulgee	3,457.33	.....	4,728.34
Reynolds Oil & Royalty Co., Okmulgee	14,233.21	.....	20,103.18
*B. P. Rudell, Konowa	.....	.....	7,347.27
*M. L. Rascoe, Burlingame, Calif.	.....	.....	8,513.46
*Replogle & Johnson, Oklahoma City	.....	.....	4,225.33
J. W. Robins, Fort Worth, Tex.	7,926.98	.....	7,216.18
Rex Oil & Gas, Winchester, Ky.	5,848.69	.....	6,603.17
Reiter-Foster Oil Co., Tulsa	104,438.04	.....	147,033.51
*Reiter-Foster Oil Co., Tulsa	4,762.50	.....	6,715.16
*Callaway Rogers and Rosa Rogers, Earlsboro	.....	.....	35,614.73
*Dock Ramsey, Ripley	28,881.67	.....	2,186.56
E. L. Robinson and Gibson-Zahn'ser Oil Corp., Tulsa	4,961.54	48,125	11,326.69
*E. L. Robinson, Tulsa	.....	.....	6,792.38
*Frank H. Reed, Neosho, Mo.	.....	.....	23,750.47
Reliance Oil Co. of Oklahoma, Houston, Tex.	4,140.06	.....	7,209.05
*Isabelle S. Reed, Neosho, Mo.	13,812.09	.....	21,329.43
Reserve Petroleum Co., Tulsa	18,420.36	.....	24,734.06
*Reserve Petroleum Co., Tulsa	2,814.40	.....	4,028.66
*Frank H. Reed and Isabelle S. Reed, Neosho, Mo.	38,138.30	.....	51,995.29
George C. Pendleton, Rec. for Red Bank Oil Co., Tulsa	37,610.89	.....	48,631.84
Redoak Oil Trust, Ardmore	1,762.12	.....	2,266.24
Rubana Oil Co., Winfield, Kans.	15.40	222,012	13,343.82
*D. Replogle, Oklahoma City	.....	.....	3,598.55
*Jamie Repolgle, Oklahoma City	.....	.....	5,136.34
*Royalty Corp. of America, Tulsa	56,234.54	.....	74,119.13
*Richard J. Roberts, Wewoka	.....	.....	4,919.16
*Anna Ruzek, Enid	.....	.....	2,147.10
Reed and Harmon, Nowata	5,223.28	.....	6,242.66
*F. B. Ryan, New York City	.....	.....	2,635.04
*Scott Rouse, Marshall	.....	.....	4,682.26
*Riverland Co., Tulsa	2,055.50	533	2,649.83
Riverland Co., Tulsa	11,404.37	11,633	15,875.91
C. E. Roth, Independence, Kans	4,599.67	.....	5,565.76
*J. S. Routt, Okmulgee	20,904.93	.....	29,676.30
*W. A. Rookstool, Norman	.....	.....	12,200.10
Thomas C. Roberts, Ardmore	.....	.....	6,172.83
Rockland Oil Co., Ardmore	26,926.02	.....	27,957.03
*Range Oil Co., Okmulgee	.....	.....	2,102.27
*Royalties Management Corp., New York City	.....	.....	15,742.67
*J. A. Rockwell, Warren, Pa.	.....	.....	6,424.52
*Philo C. Robinson, gdn., estate of Ed C. Robinson, Los Angeles, Calif.	.....	.....	2,985.58
*Dora C. Russell, Duncan	.....	.....	2,075.25
*Joseph P. Rossiter, Okmulgee	.....	.....	2,655.90
Ryan Consolidated Petroleum Corp., Tulsa	5,819.06	.....	7,562.53
*Thomas Ryan by E. D. Hall, atty., Wetumka	.....	.....	6,716.47
*C. L. Richards, Tulsa	.....	.....	5,658.81
W. R. Ramsey, W. E. Ramsey and Ramsey Petroleum Corp., Oklahoma City	.....	.....	190,189.71
Riverside Oil & Refining Co., Tulsa	.....	.....	12,228.80
Jake Rutz Oil Co., Morris	.....	.....	7,601.21
S			
Savoy Oil Co., Tulsa	7,765.39	8,124	8,986.06
*Earl Spring, Ryan	.....	.....	4,183.91
*Mossie Schonwald, Oklahoma City	.....	.....	3,142.19
*Dr. Nathan Sulzberger, New York City	.....	.....	2,303.05
*Standard Royalties-Wewoka Corp., New York City	.....	.....	4,410.96
*Standard Royalties of Canada, Inc., Toronto, Canada	.....	.....	25,570.97
*Clyde W. D. Seay, Oscar	2,618.00	.....	3,033.97
*Seneca Royalties Co., Oklahoma City	.....	.....	3,044.49
*Pearl M. Snowden, Philadelphia, Pa.	.....	.....	6,180.21
*Jennie L. Strick, Hennessey	.....	.....	3,757.71
C. B. Shaffer, Chicago, Ill.	37,787.71	.....	41,345.35
Sidwell Drilling Co., Sapulpa	4,254.38	.....	5,309.18
*J. D. Shepherd, Shawnee	.....	.....	13,829.16
*O. B. Surber, Chickasha	.....	.....	2,031.15
*Moses A. Summerfield, Memphis, Tenn.	7,126.25	.....	9,706.62
Louise Strother by J. C. Greer, trustee, Martinsville, Va.	.....	.....	7,919.36
E. L. Smith Oil Co., Inc., Mexia, Tex.	4,843.41	.....	6,616.41
*George W. Sloan, Winfield, Kans.	.....	.....	2,396.67
*Steve Smith, Blackwell	.....	.....	2,493.41
*Mrs. Lucy B. Smith, Holdenville	.....	.....	2,031.46
*Arlie E. and Alice Strough, Davenport	.....	.....	2,577.74
*Leona Smith, Blackwell	.....	.....	2,493.40
*R. Earl Smith, Blackwell	.....	.....	2,493.41
W. J. Shields, Fort Worth, Tex.	.....	.....	6,398.20
*Phil N. Stuart, Shawnee	.....	.....	4,628.49
*Mrs. Harriett W. Sparks, Shawnee	.....	.....	4,841.77
*Joseph Summerfield, Sr., Memphis, Tenn.	7,126.24	.....	9,706.63
Robert C. Sharp, Tulsa	4,588.08	.....	6,248.54
George W. Snedden, Tulsa	.....	.....	7,325.18
*Selby Oil & Gas Co., Tulsa	2,598.93	.....	2,086.26
Selby Oil & Gas Co., Tulsa	26,680.78	6,971	31,526.27
Sturm Drilling Co., Ardmore	13,474.02	5,381	16,233.98
*Sarasota Oil Co., Ardmore	3,469.07	.....	3,564.19
*Ira Shimp, Blackwell	.....	.....	6,632.68
*Dave Schoewald, Blackwell	.....	.....	3,152.20
*G. J. Smith, Tulsa	.....	.....	10,975.11
*N. Bert Smith, Oklahoma City	.....	.....	7,240.20
*C. R. Smith estate, Ardmore	3,839.52	.....	4,228.76
Marie S. Smith, Ardmore	8,157.88	.....	8,984.13
*Charles R. Smith, Ardmore	6,631.14	.....	7,283.40
Will H. Smith, Ardmore	4,757.57	.....	5,157.90
Superior Oil Corp., Tulsa	219,401.68	430,018	310,087.22
Sunray Oil Co., Tulsa	25,710.13	.....	30,213.67
*Southland Royalty Co., Ponca City	.....	.....	64,595.57
*Sun Royalty Co., Tulsa	16,823.48	.....	23,125.01
Silurian Oil Co., St. Louis, Mo.	106,403.55	603,318	138,833.85
Tom Slick, Inc., Oklahoma City	860,871.38	746,725	1,286,457.69
*Tom Slick, Inc., Oklahoma City	9,560.09	5,706	13,111.99
Schermerhorn Oil Co., Minneapolis, Minn.	3,580.66	238,064	27,441.12
Schermerhorn-Ardmore, Minneapolis, Minn.	102,842.55	87,652	105,458.18
J. B. Schermerhorn, Minneapolis, Minn.	64,303.20	.....	74,466.94
*J. B. Schermerhorn, Minneapolis, Minn.	2,953.35	.....	3,564.91
Shaffer Oil & Refining Co., Tulsa	380,365.48	.....	527,087.73
Shaffer Oil & Refining Co., Tulsa	.....	613,714	46,833.63
Shaffer Oil & Refining Co., Tulsa	.....	ch. gas 483,473	17,088.45
*Sinclair Crude Oil Pur. Co. for Hembree lease (suspense)	1,314.15	.....	1,910.38
Sinclair Crude Oil Pur. Co. for Hembree lease (suspense)	68,678.05	.....	100,647.80
Sinclair Oil & Gas Co., Tulsa	.....	gas	121,220.29
Sinclair Oil & Gas Co., Tulsa	3,115,580.44	.....	4,297,920.70
Skelly Oil Co., Tulsa	944,757.53	.....	1,232,020.51
*Skelly Oil Co., Tulsa	12,598.37	.....	16,881.57
Skelly Oil Co., Tulsa	.....	2,036,160	71,697.62
Shell Petroleum Corp., St. Louis, Mo.	.....	2,591,901	129,333.67
Shell Petroleum Corp., St. Louis, Mo.	1,563,972.82	.....	2,113,301.19
*Shell Petroleum Corp. (suspense), St. Louis, Mo.	.....	.....	6,800.42
Sinclair Refining Co., Tulsa	1,866.28	.....	2,439.23
Skelton Moore Oil Co., Bartlesville	5,330.67	.....	6,342.17
*L. O. Sparks, Oklahoma City	.....	.....	20,308.46
C. B. Shaffer, Chicago, Ill.	37,787.71	.....	41,345.35
James A. Swindler, Muskogee	9,193.58	5,043	9,311.43
Simpson-Fell Oil Co., Ardmore	28,225.60	20,961	30,669.70
*J. K. D. Shaffer, Oklahoma City	1,853.39	1,942	2,832.46
Sure Oil Corp. by N. T. Gilbert and Joseph Glass, receivers, Tulsa	4,134.43	3,053	5,334.47
Snowden & McSweeney Co., New York City	67,233.45	807	88,319.31
Sheridan Oil Co., Tulsa	14,665.08	49,984	23,138.92
Sands Petroleum Co., Tulsa	21,017.78	26,352	26,867.37
Southwest Production Co., Bristow	.....	211,163	16,893.06

Name and address—	No. of bbls.	M. ft. gas	Amount
*Leigh J. Sessions Corp., New York City	.....	.....	5,998.91
Slab Oil Co., Ardmore	3,505.96	15,912	6,158.63
Sans Bois Gas Co., Quinton	.....	.....	14,552.60
Harry Stekoll, Tulsa	5,502.55	.....	6,959.86
Simms Oil Co., Dallas	10,708.05	1,085	14,968.84
*B. B. Ralph, Kansas City, Mo.	.....	.....	4,441.96
L. G. Stanley, Pawhuska	.....	.....	19,504.70
*Sneed Royalty Co., Tulsa	14,680.81	.....	19,462.48
*C. E. Sypes, Ardmore	.....	.....	2,996.10
Sterling Oil & Gas Co., Abilene, Tex.	8,888.01	.....	10,781.37
*Katie Snell, nee Brown, Dustin	.....	.....	2,292.78
*Sunrise Oil Corp., Oklahoma City	.....	.....	2,115.96
T. B. Slick, Clarion, Pa.	614,974.24	465,629	900,778.02
*T. B. Slick, Clarion, Pa.	57,726.00	12,027	82,688.83
*Alice and T. J. Spencer, Wewoka	.....	.....	5,944.86
*A. O. Simpson, Ardmore	2,082.60	5,941	2,881.32
*W. E. Simpson, St. Louis, Mo.	2,082.60	5,941	2,881.33
*O. W. Seay, Ryan	.....	.....	8,742.86
*Gracie I. and H. I. Shirley, Tulsa	.....	.....	2,018.75
*E. D. Slough, Ardmore	.....	.....	2,214.82
*H. F. Sinclair, New York City	.....	.....	7,875.39
Sampson Oil Co., Tulsa	4,310.64	19,142	5,528.41
*Stratfield Realty Co., and James L. Dolgoff, N. Y. C.	.....	.....	3,287.17
*R. J. St. Germain, Tulsa	.....	.....	3,140.80
Charles R. Smith, Jr., Ardmore	.....	72,045	7,178.87
C. R. Smith estate, Ardmore	.....	52,791	5,231.45
Marie S. Smith, Ardmore	.....	97,658	9,772.34
G. F. Smith, Tulsa	.....	.....	10,735.30
T			
Tri-County Gas Co., Tulsa	.....	321,242	25,700.13
*Tri-County Gas Co., Tulsa	.....	116,334	9,306.76
*S. F. Thompson, Okemah	.....	.....	2,839.68
*Dr. Joseph C. Taylor, New York City	.....	.....	5,141.59
*Arthur N. Tiffin, Macomb	.....	.....	2,209.97
*T. F. and Cynthia Talley, Tishomingo	.....	.....	4,951.44
Bessie L. Turman (year of 1928)	.....	.....	26,584.58
*A. H. Taylor, Shawnee	.....	.....	2,552.75
*Sarah Leota Travis, Dover	.....	.....	3,771.73
H. H. Taylor, Tulsa	.....	.....	52,234.32
*Tawes Royalties Co., Inc., Crisfield, Md.	.....	.....	3,891.00
*A. W. Tawes, Crisfield, Md.	.....	.....	5,532.32
*Rufus S. Thomas, Purcell	.....	.....	38,703.80
Transcontinental Oil Co., Tulsa	87,547.80	218,079	121,397.40
Texas Pacific Coal & Oil Co., Thurber, Tex.	38,479.01	8,355	30,257.48
Tidal Osage Oil Co., Tulsa	.....	219,987	16,688.17
Turman Oil Co., Tulsa	5,102.07	2,567	6,170.50
Tiger Mountain Oil Co., Tulsa	4,261.99	.....	5,082.43
*J. Elmer Thomas, Fort Worth, Tex.	.....	.....	5,520.57
*M. E. Templeton, Phoenix, Ariz.	.....	.....	10,412.01
*Vida M. Tull, Yale	15,729.80	.....	23,318.99
*T. T. Talen, Maud	.....	.....	3,399.05
Thlacco Oil Co., Tulsa	9,734.28	.....	13,902.43
Tidal Osage Oil Co., Tulsa	361,105.65	.....	482,377.10
*Twin State Oil Co., Tulsa	13,434.67	.....	21,379.73
Twin State Oil Co., Tulsa	576,092.78	300,491	610,610.41
Texas Co. Producing Dept., Tulsa	1,320,324.32	.....	1,710,191.00
Texas Co. Producing Dept., Tulsa	.....	gas	149,527.72
*Texas Co. Producing Dept., Tulsa	7,104.34	.....	10,095.67
*Tidal Oil Co., Tulsa	.....	.....	745.00
Tidal Oil Co., Tulsa	632,414.66	.....	785,034.37
Tidal Oil Co., Tulsa	.....	gas	37,158.28
U			
*Virgie and Joseph Urbansky, Oklahoma City	11,001.13	.....	14,984.63
*U. S. Royalties Corp., New York City	16,533.90	7,533	22,754.66
Gillia Umburn, Weleetka	.....	.....	7,255.40
W. L. Umburn, Weleetka	.....	.....	16,805.76
United Eight Oil Co., Ardmore	12,580.72	.....	16,971.64
*Union Bank & Trust Co., for G. E. Sullivan, Kansas City, Mo.	.....	.....	9,433.34
V			
*C. P. Van Graafeiland, Tulsa	.....	.....	7,028.51
Valley Osage Oil Co., Tulsa	19,623.27	.....	22,506.47
Venmex Oil Co. and Keystone Production Co. Wichita Falls, Tex.	58,934.94	.....	76,629.72
*S. E. Vance, Tulsa	1,736.62	.....	2,986.44
*Leon G. Vorhees, Oklahoma City	.....	.....	16,240.21
Vernon Oil & Gas Co., Blackwell	6,414.56	.....	10,173.44
*Sam K. Vierson, Okmulgee	4,268.86	.....	6,167.15
*Vierson Oil & Gas Co., Okmulgee	11,361.60	.....	15,898.91
*Amanda Vasser, Tulsa	1,991.06	.....	3,075.62
*T. F. Villines, Maud	.....	.....	10,494.13
*W. F. Varnum and Elisa, Shawnee	.....	.....	15,056.54
Vaughan and Rush, Dallas, Tex.	17,090.00	.....	21,923.34
W			
*E. W. Whitney, Wewoka	.....	.....	57,211.01
J. W. Wright estate, Sapulpa	12,078.46	34,966	16,154.31
*James Wright, Bristow	.....	.....	3,347.68
Wellsville Oil Co., Wellsville, N. Y.	9,404.97	.....	11,154.62
*Frank L. Warren, Holdenville	.....	.....	2,786.81
*Irvin Wilson, Wewoka	.....	.....	2,946.87
*S. A. Wilborn, Sulphur	.....	.....	8,199.99
*L. H. Witwer, Tulsa	.....	.....	4,142.63
*W. W. Woodworth, Ringling	2,521.64	.....	2,450.36
Winkler & McQueen, Inc., Duncan	.....	.....	13,928.36
*William H. Weir, Stillwater	.....	.....	3,096.62
Wood Oil Co., Tulsa	.....	.....	9,834.50
*William L. and Lula E. Wallace, Shawnee	.....	.....	2,675.64
H. F. Wilcox Oil & Gas Co., Tulsa	222,219.14	.....	289,221.30
H. F. Wilcox Oil & Gas Co., Tulsa	.....	.....	226.25
White Eagle Oil & Refining, Wichita, Kans.	18,622.62	12,936	26,520.69
Walsh Oil Co., Tulsa	5,964.38	.....	6,971.81
Wittmer Oil & Gas Properties, Pittsburgh, Pa.	6,037.05	9,359	9,148.74
*Washington Royalties Co., Bartlesville	9,198.89	.....	12,994.79
*H. Z. Ward, Heavener (paid under protest)	3,696.91	.....	3,685.32
*Mrs. Edith S. Williams, Little Falls, N. Y.	.....	.....	2,290.15
Western Paving Co., Oklahoma City	.....	.....	20,292.96
Westervelt-Noble Oil & Gas Co., Oklahoma City	.....	144,357	14,435.87
Wood-Gilbert-Wood Syndicate No. 1, Oklahoma City	.....	.....	18,153.49
Wise & Jackson, Sapulpa	3,874.79	4,010	4,070.78
*W. S. Wilcox, Garber	.....	.....	2,146.41
*B. F. Ward, executor, Wilson	3,746.09	28,334	5,514.20
Wiser Oil Co., Sisterville, W. Va.	77,282.80	.....	88,473.15
Westheimer & Daube, Ardmore	217,367.58	.....	273,799.82
*Westheimer & Daube, Ardmore	15,722.28	.....	17,687.15
*Carrie B. Welsh, Blackwell	.....	.....	2,334.70
*J. L. Welsh, Blackwell	.....	.....	2,444.44
Watchorn Oil & Gas Co., Oklahoma City	11,384.07	.....	14,685.43
*Western States Royalty Co., Great Falls, Mont.	.....	.....	7,174.30
*W. E. Woods, Lindsay	2,309.28	.....	2,832.56
*W. K. Work, Wewoka	.....	.....	3,551.03
*E. P. Work, Wewoka	.....	.....	3,551.03
Warner-Caldwell Oil Co., Titusville, Pa.	21,906.32	.....	25,132.14
Westerly Oil Co., Bartlesville	4,559.90	1,193	6,101.01
Western Oklahoma Gas Co., Fort Smith, Ark	.....	178,050	17,805.00
*Roy Wood, Oklahoma City	.....	.....	7,001.52
*Weimer & Url, Okmulgee	.....	.....	2,932.14
*Sophie Weber, Marshall	.....	.....	2,651.84
*Morris Weil, Oklahoma City	.....	.....	2,003.40
*John W. Willmott, San Diego, Calif.	.....	.....	41,807.16
*Benton Wilson, Greenfield, Mo.	.....	.....	4,506.78
*E. A. Walker, Oklahoma City	.....	.....	29,381.92
*C. C. Walker, Okemah	.....	.....	5,593.99

(Continued on Page 107)



COOPER

For Small Quantities of Low Pressure Gas

IT has always been a serious problem to market those smaller quantities of gas from outlying low pressure wells. In many cases there wasn't enough of it to warrant installing and operating a compressor station especially with present day prices of operating labor. And yet, if those smaller quantities here and there could be delivered into the high pressure lines at a reasonable cost they would show a nice yearly profit.

Natural Gas men, put the problem up to Cooper engineers, and the Cooper Type 16-50 B. H. P. direct driven compressor is the answer. This is a four cycle single acting engine which will operate on the least possible fuel gas and lubricating oil. It is compact, thus requiring small building space and foundations. It is shipped completely assembled hence easily and quickly installed. Safety devices can be furnished which permit continuous operation without a full time attendant.

When Cooper engineers were designing this engine they made it heavy enough so that with only three changes it can be operated as a full Diesel engine. This adapts it to air lift and repressuring service where fuel gas is becoming scarce or not available. Write the nearest office for full information.

THE COOPER-BESSEMER CORPORATION

Formerly The C. & G. Cooper Company and The Bessemer Gas Engine Company

MOUNT VERNON, OHIO — GROVE CITY, PA.

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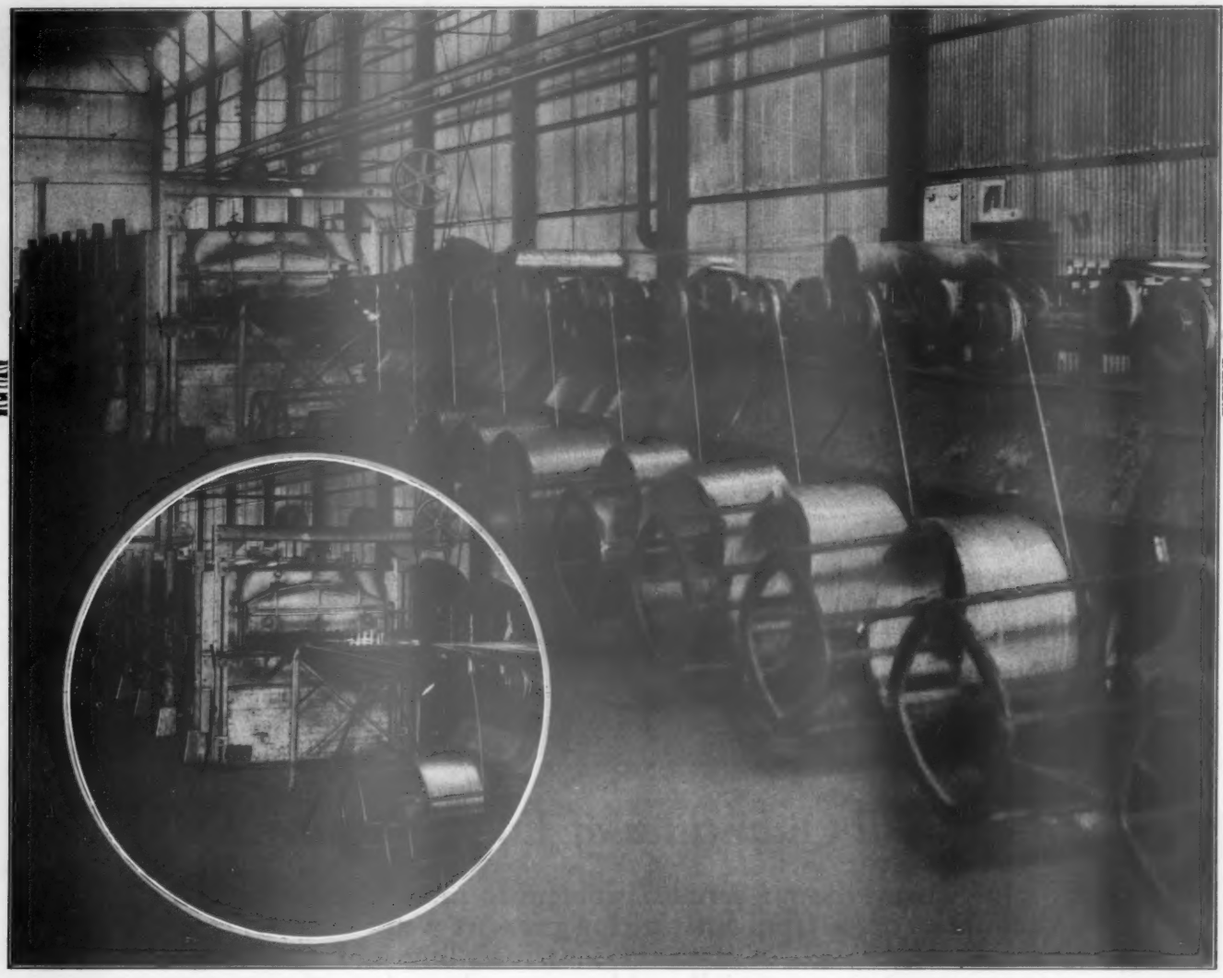


DAY AND NIGHT FOR 28 MONTHS

BLACK DRILLING LINES are lively, yet durable. BLACK ROTARY LINES have stamina and toughness. Qualities like these, plus copper-bearing steel wire and correct tempering, avoid costly drilling interruptions — and have kept our plant running constantly, day and night, since January, 1927. The immense tempering plant in this illustration works constantly, 24 hours a day, on nothing but Black Wire Rope. To use Black Wire Rope is to be convinced of long, lasting service.

STOCKS:

Instant shipment from 18 points. OKLAHOMA — Maud, Oklahoma City, Lovel. TEXAS—Albany, Big Spring, Coleman, Houston, Pyote, Ranger, Wichita Falls, Wink. ARKANSAS—El Dorado. LOUISIANA—Sulphur. CALIFORNIA—Los Angeles. KANSAS — Wichita Heights, Gorham. ILLINOIS—Peoria.

BLACK WIRE ROPE CO., Peoria, Ill.

BLACK WIRE ROPE

Texas Gross Production, First Quarter, 1929

The gross crude oil production report for Texas covering the first quarter of 1929 shows a total production of 68,069,972.87 bbls. valued at $63,513,126.22, an average of 93.3 cents per barrel. The report does not represent the exact production of the period as there are figures included in it that represent belated reports dating back to previous quarters, and some producers' names are missing because they were late in filing reports. The Gulf Production Co. with 7,173,134 bbls. led all producers. The same company produced 6,300,386 bbls. in the last quarter of 1928, indicating an increase in the first quarter of this year of 872,748 bbls.

A

Name, address—	Barrels	Value
Adamson, Peter, Jr., Tulsa, Okla. (12-31-28)	.....	$1,579.65
Adamson, Peter, Jr., Tulsa, Okla.	.....	1,087.64
Artex Oil Co., Wichita Falls	1,738.04	2,329.12
Alamo Oil Co., Brownwood	472.00	566.40
Adams & Lyles, Lockhart (12-31-28)	22,772.66	32,270.19
Alworth Stevens Hild Co., New York, N. Y.	5,473.00	4,943.58
Arnold & Frazier, Putnam (12-31-28)	389.50	623.46
Andrews, W. R. et al, Putnam	1,090.40	1,386.55
Atwood, Harry, et al, Ranger	2,185.75	2,615.23
Arnold, J. L., et al, Eastland	1,699.50	1,898.05
Associated Oil Co.-Texas Division, Tulsa, Okla.	1,252.23	1,484.11
Ama-Gray Oil Co., Amarillo	3,093.44	3,480.42
Acorn Oil Co., Beaumont	7,854.76	9,190.06
A. & P. Production Co., Houston	57,241.56	65,058.11
Atlas Oil Corp., Humble	2,423.00	2,908.00
Alaska Petroleum Co., Amarillo	1,089.55	1,144.00
Alamosa Oil Co., Amarillo	36,887.55	32,850.41
Abbott, R. W., Beaumont	1,296.51	1,555.82
Ashe Syndicate, Fort Worth	739.20	923.50
Ailes, O. T., Wichita Falls	702.85	906.67
American Refining Properties, R. M. Waggoner estate, Wichita Falls	1,729.16	2,393.04
Abraham, Earl, Bridgetown	643.75	910.39
Ailes, J. W., Wichita Falls	475.13	602.91
Atlas Production Co., Burkburnett	2,004.62	2,415.94
Adams, Walter B., Wichita Falls	425.28	554.86
Ascott Co., Wichita Falls	8,559.58	12,724.88
All-American Oil & Gas Co., Oklahoma City, Okla.	52.80	65.62
Atlas Production, Burkburnett	1,041.83	1,593.92
American Refining Properties, M. J. Bashara estate, Wichita Falls	3,283.20	4,366.37
Allday Oil Corp., Wichita Falls	5,328.17	7,098.35
Arco Oil & Gas Co., Baltimore, Md.	8,382.50	11,681.15
Arkansas Fuel Oil Co., Shreveport, La.	6,547.00	8,205.50
American Refining Properties, Creditors' Committee, Wichita Falls	8,446.01	10,472.88
American Maracaibo Co., New York, N. Y.	299,901.71	240,615.04
American Refining Properties, N. B. Chenault estate, Wichita Falls	1,484.37	2,035.05
Abercrombie, J. S., Co., Houston	125,252.20	142,902.45
Amarillo Oil Co., Amarillo	1,728.80	1,481.75
Arco Oil Co., Wichita Falls	18,415.73	15,865.55
Adams & Prince, Amarillo	21,341.15	26,180.01
Anchor Oil Co., Dallas	1,067.40	1,342.80
Apple-Brandeberry Oil Co., Wichita Falls	11,814.20	15,656.97
Allaun, Wm. E., for Atlantic Keystone Petroleum Co., Bolivian Petroleum Corp., Fort Worth	1,504.61	1,203.68
Atkinson & Sandefer Oil Corp., Breckenridge	14,696.57	20,588.88
Andrews Petroleum Corp., New York and San Antonio	4,573.61	5,004.97
American Refining Properties, Wichita Falls	40,545.28	45,940.96
Amerada Petroleum Corp., Tulsa, Okla.	597,163.52	448,439.32
Atlantic Oil Producing Co., Dallas	1,616,288.15	1,124,056.49
Albany Oil Co. and Hope Oil & Gas Co., Breckenridge (7-1 to 12-31-28)	4,031.15	4,857.70
Alworth, T. J., Ranger	370.79	408.84
Ames, E. W., et al, Cisco	1,574.40	2,192.90

B

Birk, C. E. and C. L. Kelley, Iowa Park	155.46	191.20
Brannon & Murray, Cisco	3,520.21	4,664.33
Big Lake Oil Co., Pittsburgh, Pa.	1,189,013.42	1,392,001.79
Bryant, M. D., et al, San Angelo	1,692.00	1,120.16
Barkley & Conway, Ranger	4,551.45	6,748.31
Burkburnett Production Oil Trust, Baltimore, Md.	604.82	827.30
Badger Oil Co., Amarillo	7,794.70	9,116.52
Barkley & Meadows, Wichita Falls	55,469.09	73,749.24
Beaver Oil Corp., Oklahoma City, Okla.	8,103.78	8,165.54
Bell Oil & Gas Co., Tulsa, Okla.	35,079.54	35,242.02
Bullington-Clark, et al, Wichita Falls	7,731.86	6,059.94
Bonchil Co., Wichita Falls	5,132.51	7,190.98
Bexata Oil Co., San Antonio	1,508.69	1,647.35
Bridwell & Mayfield, Wichita Falls	6,618.73	10,374.57
Beams, Drew, Okmulgee, Okla.	1,059.82	1,372.29
Burke-Greis Oil Co., Tulsa, Okla.	2,209.16	3,131.51
Brady Bros., Minerva	1,325.79	1,636.85
Bashara, J. F., Houston	7,161.93	8,594.32
Bridwell Oil Co., Wichita Falls	13,789.24	13,281.59
Barnes, J. B., Electra	2,905.85	3,547.16
Barnes, J. B. (Receiver), et al, Electra	1,002.50	1,313.23
Brownwood Producing & Refining Co., Brownwood	1,104.90	1,361.87
Black Diamond Oil Co., Amarillo	180.00	172.80
Bennett, Mills, Production Co., Houston	33,866.82	37,372.99
Big Indian Oil & Development Co., Gainesville	1,179.04	1,462.01
Black-Pearson & Hudson, Corsicana	3,675.69	2,940.55
Bynum & Palmer, Rockdale	164.46	202.92
Barkley & Meadows, Fort Worth	14,036.37	5,597.97
Benedum-Trees Oil Co., Pittsburgh, Pa.	57,481.51	51,860.83
Blue Bonnett Petroleum Corp., San Antonio	917.64	965.39
Bowman Oil Co., Rockdale	890.60	1,126.12
Barkley, T. F., Sour Lake (Year 1928)	5,322.32	6,386.76
Burk Burnett, Jr., Oil Co., Fort Worth (12-31-28)	286.76	404.33
Burk Burnett, Jr., Oil Co., Fort Worth (9-30-28)	318.63	452.45
Burton McKee Oil Corp., Strawn	None	None
British American Oil Producing Co., Wichita Falls	7,586.60	10,336.57
Baird Oil Co. Putnam	213.90	254.00
Bullington, Lee, Pendleton & Bullington, Wichita Falls	15,580.94	21,091.96
Bass & Dillard, Wichita Falls	9,842.29	12,493.50
Baldwin, F. C., et al, Fort Worth	1,449.51	2,029.34
Bradstreet, L. G., Co., Fort Worth	20,428.36	28,262.41
Bonner, J. H. S., et al, Wichita Falls	5,688.65	7,522.85
Black Cat Oil Co., Electra	986.54	1,291.18
Brazos River Gas Co., Wichita Falls	485.48	777.13
Barnsdall Oil Co., Tulsa, Okla.	38,009.70	45,014.46
Burris, Joe D, et al, Cross Plains	1,620.00	2,176.20
Bartlett Production Co., Rockdale	1,139.17	1,429.66
Bourbon Royalty Co., Dallas	5,988.56	3,623.50
Bevering, A. H., et al, Henrietta	1,953.01	2,428.62
Broderick, A. J. and George Calvert, Fort Worth	467.58	678.60
Biel, Wm. A., Von Ormy	32.00	36.08
Big State Oil Corp., Dallas	204.96	256.87
Buttram Petroleum Corp., Oklahoma City, Okla.	43,163.19	63,376.04
Barbara Oil Co., Oklahoma City, Okla.	3,063.59	4,418.00
Borealis Oil Co., Oklahoma City, Okla.	3,930.60	5,341.21
Bartlett, Wm., Co., Electra	343.41	515.11
Bohner, C. J., et al, Burkburnett	10,563.57	13,880.71
Brinkley Producing & Refining Co., Pittsburgh, Pa.	342.01	408.06
Bohner, Crenshaw & Whitehill, Burkburnett	8,241.05	8,950.53
Britton Gordon & Wickens, Strawn	434.35	605.75
Bailey, Carl B., Wichita Falls	7,670.67	10,555.32
Bailey, Fannie, Wichita Falls	206.60	287.94
Bailey, Fannie, Wichita Falls	1,239.96	1,582.37
Blucher Oil & Gas Co., Gainesville	160.00	184.00
Bowers Oil Co. (A Trust Association), Vernon	1,331.26	1,567.91
Biggs Oil & Gas Co., McKinney	1,088.00	1,556.00
Briggs, R. F., C. O. Smith and T. C. Steiner, Corsicana (12-31-28)	105.74	134.57
Brownlee-Pope Oil Co., Austin	2,621.22	3,290.70
Bynum, W. W., estate, Rockdale	946.92	1,189.03
Braden Co., Eastland	2,206.78	3,014.02
Barkley Crotty Six and Little, Ranger	928.38	1,134.40
Barkley & Crotty, Ranger	4,675.96	6,233.36
Barkley & Meadows, et al (Waggoner "D" lease), Wichita Falls	9,303.06	11,592.48
Barkley & Meadows, et al (Waggoner "C" lease), Wichita Falls	41,155.91	51,977.90
Bridwell & Heydrick, trustee, Wichita Falls	2,327.03	3,341.44
Boller, C. W., Wichita Falls	6,860.47	9,561.45
Breckenridge Gasoline Co., Toledo, Ohio	28.37	33.20
Blair & Kell, Dallas	1,357.98	1,542.88
Brooks & Hanlon, Inc., Tulsa, Okla.	622.22	756.11
Beggs, George Strip, Fort Worth	2,009.82	3,248.70
Brown, Mrs. Carrie L., et al, Orange	17,711.59	21,275.49
Brown, Dr. E. W., estate, Orange	788.72	946.44
Baker, James Blair, Jr., and C. F. Camp, trustees, Wichita Falls	6,104.49	7,782.05
Baker, James Blair, Jr., and C. F. Camp, trustees, Wichita Falls	58,395.56	73,906.00
Burns, L. T., Wichita Falls	42,773.64	59,329.47
Baker & Pardue, Breckenridge	2,414.45	3,268.11
Baker, J. A. and Mollie B., Breckenridge	7,062.00	8,756.88
Baker, Mollie B. and Fred R., Breckenridge	1,448.00	1,882.40
Bain, L. L., Iowa Park	970.00	1,208.79
Bain & Clark, Iowa Park	575.68	688.44
Bolin & Lindsay, Graham	3,119.58	4,978.32
Bolin & Lindsay, Graham	1,189.60	2,200.76
Bruce, A. D., Brownwood	718.50	855.01
Bluebonnet Oil Co., Wichita Falls	710.67	961.20
Belva Oil Co., Eastland	161,452.12	257,812.32

C

Cranfill Bros. Oil Co., Dallas	179,148.90	82,252.69
Corpus Christi Oil Co., Corpus Christi	434.59	347.67
Chandler, E. B., Jacksboro	926.43	1,078.87
Canary, S. C., et al, Tulsa, Okla.	395.40	510.36
Cohen, Aaron, Baltimore, Md.	7,392.87	10,677.00
Coppock & Coleman, Iowa Park	29,997.00	41,872.32
Consolidated Oil Co. of Texas, Wichita Falls	64,730.87	82,432.18
Champlin Refining Co., Enid, Okla.	39,239.52	34,281.03
Clear Lake Oil Co., Rockdale	1,435.26	1,811.43
Caltex Oil Co., Spokane, Wash.	337.27	323.78
Charter Oil Co., Brownwood	26,053.00	37,854.59
Cockrell-McIlroy Oil Co., Inc., Amarillo	74,573.58	85,715.14
Cromwell, Carl G., Best	9,525.20	6,280.30
Church-Weekley & Fields, Fort Worth	31,787.35	20,661.77
Clark, R. R., Wichita Falls	16,345.49	22,815.79
Central Texas Refining Co., Corsicana	17,393.02	22,502.19
Culbertson Bros. Co., Fort Worth	5,151.62	3,841.40
Crosscut Corp. of Fort Worth, Fort Worth	1,108.75	1,540.41
Clarkson, William, Jr., Corsicana	2,891.17	3,753.63
Cornhusker Oil Co., Lincoln, Neb.	2,078.44	1,662.75
Crown Oil & Refining Co., Houston	14,611.74	17,534.09
Crown Central Petroleum Corp., Houston	45,847.96	37,290.98
Coffield & Hale, Rockdale	2,140.29	2,723.30
Collins, J. L., & Co., Corsicana	1,861.14	1,884.41
Clay, J. D., Houston	1,889.17	2,096.13
Central Oil Co., Cameron	3,887.66	4,180.82
Cosden & Co., Inc., Fort Worth	417,579.73	357,462.30
Chapman, P. A., estate, Waxahachie	13,442.96	16,983.93
Cowling & Newell Oil Co., Burkburnett	234.34	248.33
Clem Oil Co., Houston	290.87	261.77
Continental Oil Co., Wichita Falls	553,386.28	634,258.64
Cunningham, E. J., et al, Coleman	20,196.05	21,696.53
Cisco Oil Co., Tulsa, Okla.	27,629.74	32,194.04
Cullen, J. R., et al, Houston	14,470.53	16,162.82
Crown Oil Corp., Brownwood	2,371.56	2,728.61
California Co., Colorado	1,352,763.00	925,506.63
Columbia Petroleum Co., Laredo	8,543.00	6,835.00
Capitol Oil Co., Orange	741.95	880.24
Coffey & Graham, Wichita Falls	548.56	422.57
Crosbie, J. E., Inc., Tulsa, Okla.	14,207.36	13,040.80
Carter, Roy I, Wichita Falls	14,721.93	9,113.71
Coyle-Concord Oil Co., San Antonio	53,223.28	35,491.97
Camp Oil & Gas Co., Wichita Falls	1,072.31	1,400.24
Cole, W. C., Wichita Falls	1,866.86	2,534.86
Caruthers Co., San Antonio	1,830.95	1,857.86
Cashdollar & Snyder, Brownwood	231.00	256.41
Cosa Oil Co., Cisco	279.64	395.60
Craig & Lowrie, Pittsburgh, Pa.	1,623.94	1,680.29
Camel Oil Co., Pampa	1,601.13	2,192.30
Connell-Wixson & Frazier, Eldorado, Kans.	1,715.00	1,886.50
Corpus Christi Oil Co., Corpus Christi	429.49	429.49
Cullen, H. R., et al, Houston	16,318.41	19,418.91
Caldwell, John W., Wichita Falls	2,675.38	3,578.15
Chapman, O. H., Waxahachie	225.70	270.85
Cushing Refining & Gasoline Co., Cushing, Okla.	7,133.42	4,636.72
Crabb & McNeel, San Angelo	1,030.77	1,435.54
Cohen, Aaron, Baltimore, Md.	6,963.38	11,384.38
Cable, J. H., Wichita Falls	1,222.84	1,674.04
Carey, E. S., et al, Wichita Falls	137.98	144.88
Carey, E. S., et al, Wichita Falls	780.56	952.28
Canyon Oil & Gas Co., Inc., Cross Plains	1,352.02	1,944.53
Culbertson Co., Wichita Falls	11,847.27	16,777.56
Cranfill Bros. Oil Co., Wichita Falls	3,911.60	5,422.56
Curtis, Jas. A., Wichita Falls	1,945.79	2,686.65
Clark, C. W., Wichita Falls	72.78	89.52
Crenshaw, Albert, Wichita Falls	1,852.78	2,479.30
Cosden, J. S., Inc., Fort Worth	5,716.03	7,385.11
Chestnut & Smith Corp., Tulsa, Okla.	6,168.81	8,360.59
Collier, J. W. and E. Mabel, Tipton, Okla.	439.79	507.53
Carlin, W. W., Ranger	180.40	272.40
Carlin and Tobin, Ranger	505.00	747.40
Christi Bros., Wichita Falls	8,668.42	11,776.87
Conway Bros. and Gholson, Ranger	170.56	139.30
Conway Bros., Ranger	2,178.68	3,292.36
Cox, Edwin B., Ardmore, Okla.	1,849.37	2,469.73
Conner Son & Cloughley, Gotebo, Okla.	11,972.70	16,517.26
Continental Supply Co., St. Louis, Mo.	452.94	571.73
Chenault, W. L., Amarillo	648.59	895.55
Canadian River Oil Co., Amarillo (9-30-27)	15,525.40	13,369.78
Canadian River Oil Co., Amarillo (12-31-27)	12,758.15	9,568.66
Canadian River Oil Co., Amarillo (3-31-28)	10,842.60	8,893.94
Canadian River Oil Co., Amarillo (6-30-28)	8,529.88	7,273.39
Canadian River Oil Co., Amarillo (9-30-28)	7,730.02	7,339.42
Canadian River Oil Co., Amarillo (12-31-28)	5,431.74	5,766.29
Cuno, Mrs. Bertha, Moran (6-30-27 to 3-31-29)	5,480.30	6,724.59
Carey, C. W., Wichita Falls	4,973.92	5,222.37
Callihan, George, Albany (7-31-28 to 3-31-29)	1,428.00	1,739.30
Carter Development Co., Fort Worth (7-31-28 to 3-31-29)	1,428.00	1,739.30
Campbell & Wills, Burkburnett	1,146.56	1,540.88

(Continued on Next Page)

D

Name, address—	Barrels	Value
Duho Oil Co., Houston	222.19	350.74
Dixie Oil Co., Inc., Shreveport, La.	90,786.08	59,048.33
Duke-Langford Oil Co., Wichita Falls	5,404.28	4,323.42
Dudley, G. S., Iowa Park	1,665.86	2,402.17
Danciger Oil & Refining Co. of Texas, Fort Worth	88,811.08	106,711.48
Double Five Oil Co., Amarillo	1,461.26	1,297.59
Derby Oil Co., Wichita, Kans.	24,267.58	29,103.15
Davis, Caroline A., Somerset	365.27	383.10
Dixon Creek Oil Co., Inc., Amarillo	87,314.60	78,978.13
Delmar Oil Co., Bartlesville, Okla.	7,551.73	8,974.95
Dale & Crawford, Electra	684.78	922.72
Dunaway, J. E., et al, Wichita Falls	1,809.41	2,472.57
Duncan, J. W., Wichita Falls	1,133.95	1,538.73
Dean, H. R., Tulsa, Okla.	31,914.95	33,543.06
Dunigan Bros., Breckenridge	385.35	479.97
Dunigan Bros., Breckenridge	762.12	750.44
Dorian, R. P., Wichita Falls	19,393.21	25,211.17
Dillon & Glasscock Co., San Antonio	528.12	512.62
Dunbar, S. M. No. 1, Houston	None	None
Douglas Oil Co., Tulsa, Okla.	1,963.60	1,774.59
Davis, Beatrice H. (Admnx. L. R. Davis estate), Tulsa, Okla.	77.76	92.00
Dean Oil Co., Burkburnett	500.34	615.42
Dominion Oil Co., Tulsa, Okla.	1,337.27	1,689.66
Dennis, J. S., Moran	1,604.46	2,001.39
Dale-Knotts Oil Co., Wichita Falls	245.75	341.36
Dentsen, B., trustee, Beaumont	2,257.68	2,709.21
Derby, Haines & Williams, Wichita, Kans.	2,949.02	2,415.29
Derby, A. L. and E. A. Haines, Wichita Falls	8,249.50	8,429.31
Dallas Petroleum Co., Houston	274.05	361.75
Dayton Oil Co., Dayton	149.36	179.23
Dunlop, Robert, Ponca City, Okla.	11,386.21	15,511.64
Duffield & Howard Oil Co., Tulsa, Okla.	749.78	866.13
Douglas Production Co., Electra	2,106.61	2,821.61
Dalton, Jack, Oil Co., Fort Worth	1,855.00	2,468.65
Dull Earls Texas Co., Albany	72,993.81	96,838.47
Dale Oil Corp., Wichita Falls	5,131.68	7,734.30
Duho Oil Co., Houston	181.50	217.80
Dixie Drilling Co., Inc., Fort Worth	194.32	299.29
Douglas Brothers Oil Co., Electra	3,145.03	4,392.00
Duquesne Oil Corp., Eastland	478.84	714.07
Draper, W. H., Burkburnett	374.04	474.12
Draper & Sanders, Burkburnett	672.23	860.44

E

Engel, E. A., Albany	4,319.88	5,451.55
Erickson, Selma E., Wichita Falls	90.45	122.97
Ellis & DuBose, Fort Worth	994.86	1,151.00
Earnest Oil Co., Rockdale	496.48	640.45
Emrick Lease, Minerva	322.90	384.08
Ellis & Anderson, San Antonio	136.26	144.05
Eastland Oil Co., Fort Worth	122,592.30	89,907.91
Eurno Oil Corp., Abilene	301.05	363.15
Easton, E. S., Wichita Falls	1,577.77	2,157.73
Eddy Oil Co., Beaumont	721.89	866.27
Electra Production Co. Inc., Electra	997.87	1,321.84
Erie Investments Limited of Texas, Rockdale	570.00	655.50
Ellis & Lancaster, Beaumont (9-30 and 12-31-28)	134.62	161.54
Ellis & Lanaoster, Beaumont	705.75	844.50
Eggers, J. E., trustee, San Antonio	641.80	641.95
East Batson Oil Co., Batson	17,733.67	21,280.40
Ellis & DuBose, Fort Worth	3,177.75	3,808.70
Ellis & Anderson, San Antonio	159.54	183.27
Empire Gas & Fuel Co., Bartlesville, Okla.	287,045.24	303,177.18
Empire Gas & Fuel Co., Bartlesville, Okla. (March, 1929)	23,636.37	28,924.46

F

F. H. E. Oil Co., Sherman	7,571.86	6,513.13
Fleming and Kimbell, Sherman	4,357.25	3,306.03
Fain-McGaha Oil Corp., Wichita Falls	529,205.43	697,159.58
Fountain Production Co., Saratoga	1,866.99	2,240.39
Farlyn Oil Co., Houston	14,644.65	8,820.99
Fisher, J. A., Wichita Falls	1,041.89	1,441.81
Flynn, W. B., Beaumont	3,935.07	4,766.79
Frontier Oil Co., San Antonio	10,606.11	12,033.33
Ferguson & Watson, Electra	1,128.99	1,544.87
Fort Bend Oil Co. (Gordon & Sharp and H. B. Gordon, Jr.) Houston	27,420.65	30,841.95
Fox & Adams, Burkett	13,324.00	15,062.53
Fogle Oil Co., Kinqua, Pa.	1,653.00	1,988.16
Fitzgerald Syndicate Lease, Wichita Falls	156.00	206.64
Falls Production Co., Wichita Falls	6,232.93	8,389.80
Ferguson, W. R., Wichita Falls	720.36	991.73
Farish & Ireland Lease, Houston	5,835.00	7,002.00
Finston, Mark, Tulsa, Okla.	2,128.76	2,898.25
Forster-Townsend-Ungren-Frazier, Putnam	498.33	755.15
Forest Oil Corp., Fort Worth (12-31-28)	23,682.44	38,795.28
Forest Oil Corp., Fort Worth (9-30-28)	27,541.68	42,439.85
Forest Oil Corp., Fort Worth (9-30-27)	81,910.83	114,671.27
Forest Oil Corp., Fort Worth (12-31-27)	60,606.03	85,398.44
Forest Oil Corp., Fort Worth (3-31-28)	39,486.41	56,568.51
Fresno Oil Co., Wichita Falls	31,548.21	42,274.60
Freeman & Grebin, Wichita Falls (12-31-28)	1,092.28	1,540.11
Four Oil Co., Wichita Falls	4,298.13	5,867.55
Freeman-Hampton Oil Corp. ("A" lease), Wichita Falls	5,005.90	7,002.08
Freeman-Hampton Oil Corp. ("B" lease), Wichita Falls	707.44	1,006.40
Freeman & Grebin (Hennig), Wichita Falls	7,642.06	9,513.53
Freeman & Grebin (Alexander), Wichita Falls	781.56	888.73
Freeman & Grebin (Alexander), Wichita Falls (9-30-28)	926.36	1,265.24
Franklin, Wirt, Ardmore, Okla.	1,076.60	1,492.24
Fort Ring Oil & Gas Co., Fort Worth	610.78	950.04
Fain, L. B., Comanche	837.71	921.47

G

Gwinnup, H. G., Fort Worth	601.54	891.61
Godfrey, F. L., Enid, Okla.	75.32	98.37
Golden, A. C., Iowa Park	628.87	812.50
Golden, A. C., Iowa Park (1-1-28 to 12-31-28)	3,130.38	4,255.00
Gulf Production Co., Houston	7,173,134.34	6,155,502.83
Group No. 1 Oil Corp., Big Lake	449,762.37	613,689.72
Gates Oil Co. (Wyo.), Littleton, Colo.	5,200.96	5,130.58
Gunn Production Co., Cross Plains	1,485.00	1,892.69
Gilbert Co., Beaumont	8,709.49	10,451.38
Gopher Oil Co., Amarillo	763.41	676.24
Goldelline Oil Corp., Oklahoma City, Okla.	8,103.78	8,165.54
G. & K. Production Co., San Antonio	1,306.61	1,432.13
Gandy, L. O., Wortham	1,454.17	1,756.09
Graham & Lash, Cisco	637.15	765.44
Godley Oil & Gas Co., Dallas	29,696.52	27,219.28
Gray & Adams, Inc., Gainesville (9-30-28)	1,902.18	1,978.01
Gray & Adams, Inc., Gainesville (12-31-28)	1,320.86	1,347.25
Gray & Adams, Inc., Gainesville	1,300.01	1,282.61
Gainesville Oil & Development Co., Gainesville	918.00	863.46
Gilliland, C. W., Wichita Falls	2,442.92	3,293.51
Ginter-Jones Oil Co., San Antonio	513.50	577.79
Ginter-Lange Oil Co., Inc., San Antonio	1,441.00	1,680.52
Golden West Oil Co., San Antonio	46,329.29	42,982.36
Gwynn-Boyd Drilling Co., Wichita Falls	2,961.07	2,838.92
Glasscock Leasing Syndicate, San Antonio	1,789.68	1,942.56
Grayce Oil Co., Wichita Falls	23,205.33	31,094.64
Galvez Oil Corp., Tulsa, Okla.	3,863.56	4,965.68
Golding, Dudley S., Wichita Falls	13,795.61	17,244.51
Gardner, Collins & Dunigan, Pampa	895.05	1,173.68
Gilman & McMurray, Cisco	4,990.97	7,430.92
Gilman and Conway Bros., Ranger	5,072.85	7,503.19
Gandy & Peyton, Wortham	2,783.00	3,324.83
Guthrie, Cole & Ferguson, Wichita Falls	692.86	866.48
Grady, D., Electra	540.00	785.00
Granite Oil & Gas Co., Ridgway, Colo.	351.44	503.13
Gordon Oil Co. of Texas, Logan, Ohio	81.76	103.02
Gray, K. C., Vernon	5,294.05	6,849.66
Gladis Oil Co., Saratoga	2,840.94	2,840.94
Gaither Production Co., Rockdale	1,089.29	1,379.47
Gibson Oil Corp., Amarillo	44,659.21	50,494.65
Glass Bros., Rosebud	806.28	990.74
Greene Production Co., Fort Worth	44,482.16	49,087.69
Gholson, John M., Ranger	9,872.11	13,608.35
Gates Oil Co., Ardmore, Okla.	2,902.79	4,341.12
Gallagher & Lawson, Desdemona	155.54	193.84
Glenridge Oil Corp., St. Louis, Mo.	3,323.60	4,464.83
Gardner Bros. & Collins, Wichita Falls	960.13	1,238.14
Gardner, Wilson & McCaldin, Wichita Falls	1,280.38	1,771.41
Gilliland-Rosser et al, Wichita Falls	32,152.17	44,727.41
Gilliland, C. W., and associates, Wichita Falls	14,318.52	22,426.13
Gwynn, P. F. (Indv. and Agt. for J. F. Boyd), Wichita Falls	1,330.14	1,869.69
Gwynn, P. F., Wichita Falls	8,966.42	13,082.33
Golding & Cochran, Wichita Falls	15,030.16	18,787.70
Gates-Bacon-Lea, Wichita Falls	7,139.00	9,043.58
Gultex Production Co., Waxahachie	2,304.60	3,237.82
Grady, D., Electra	511.28	657.26
Great Lakes Oil Co., Wichita Falls (12-31-28)	2,421.48	3,632.22
Gutzman, Harry, Fort Worth	2,664.73	1,880.02
Gutzman, Harry, Fort Worth (12-31-28)	1,154.27	854.16

H

Howell, M. L., Lohn	322.00	396.00
Hamilton, Walter R., trustee, San Antonio	4,285.91	5,313.71
Hoffer Oil Co., Fort Worth (12-31-28)	1,506.72	1,981.20
Hoffer Oil Corp., Fort Worth	845.44	881.10
H-Y Oil Co., Inc., Fort Worth	11,775.00	15,442.40
H. B. J. Oil & Gas Trust, Baltimore, Md.	2,182.84	3,033.16
Hedges, F. M., Wichita Falls	454.63	650.12
Hughes, J. K., Oil Co., Mexia	24,751.14	30,432.90
Hamilton, W. L., Burkburnett	645.97	990.06
Horn, T. W., Houston	2,969.26	3,563.11
Huber, J. M., Co. of Louisiana, Inc., Breckenridge	1,617.77	1,492.63
Halmack Oil Co., Dallas	1,222.07	1,645.16
Hanover Co., Inc., Wichita Falls	5,827.74	7,375.69
Humphreys Corp., Houston	197,080.99	221,789.95
Humphreys Brothers, Inc., Houston	2,471.16	3,614.86
Harris & Simons, Tulsa, Okla.	7,746.52	4,647.91
Holmes and Huey, Whittenburg	2,131.62	2,010.90
Holmes Brothers, Amarillo	3,630.42	3,637.59
Holmes-Riley, Amarillo	4,011.92	4,272.08
Hunter, T. F., Wichita Falls	10,928.53	14,914.38
Hammon & Heyser, Wichita Falls	16,635.72	21,994.00
Hammon & Heyser Special Account, Wichita Falls	12,213.38	17,282.56
Hammon, W. H., Wichita Falls	55,794.57	79,789.71
Holbrook & Woods, Wichita Falls	51,068.20	70,722.08
Herbert Oil Co. of Texas, Fort Worth	6,209.45	6,309.94
Hutton Oil Corp., Cisco	14,231.88	16,616.51
Hardie, J. M., & Co., Sour Lake	944.67	1,133.61
Houston Production Co., Houston	14,255.95	16,718.06
Hill & Dowell, Batson	11,886.59	14,263.90
Hobbs Oil Co., Tulsa, Okla.	2,134.63	2,821.04
Hoppes, W. T., Burkburnett	431.10	434.97
Hill, W. R., trustee, Burkburnett	230.40	323.52
Hope Oil & Gas Co., Fort Worth	11,798.87	15,259.36
Humble Oil & Refining Co., Houston	4,496,154.13	4,472,902.59
Homaokla Oil Co., Oklahoma City, Okla.	4,369.85	5,557.46
Houston Gulf Gas Co., Houston	18,548.22	17,793.72
Harvey, R. A., Houston	1,252.00	1,328.36
Home Oil & Gas Co., Inc., Albany	1,894.67	2,325.79
Houghland Production Co., Dallas	4,280.52	5,062.35
Hyer, Fred, Fort Worth	10,398.52	8,593.38
Houston Oil Co. of Texas et al, Houston	78,206.96	67,460.72
Hammond, J. G., Fort Worth	226.12	329.74
Hedrick-Camp Drilling Co., Wichita Falls	3,079.70	3,296.00
Herrmann et al, Pampa	51,308.95	60,124.54
Hefley-McIntosh & Thomas, Cameron	653.50	793.10
Hamon, Jake L., Ardmore, Okla.	7,952.23	10,699.97
Hammun Oil Co., Eastland	349.00	439.74
Howard, Duffield & Berlin, Tulsa, Okla.	1,177.26	1,180.92
Hyde Production Co., Houston	2,992.74	3,591.29
Hyde, George, Houston	4,304.00	5,814.78
Huber, J. M., Co. of La., Inc., Breckenridge	79.47	91.79
Huffman Oil Corp., Amarillo	7,620.12	6,851.03
Hines, Harry, Wichita Falls	1,693.21	2,323.07
Harrison Oil Co., Houston	40,208.44	54,250.17
Hanover Co., Inc., Wichita Falls (1927-28) (Final)	.....	403.03
Hitchman & Howard, Inc., San Antonio	2,575.44	2,981.62
Hamilton & Martin, Wichita Falls	2,146.50	2,790.45
Helvetia Oil Co., San Antonio	12,562.37	13,302.75
Hickey, T. J., et al, Corsicana	57.20	76.42
Hart Oil Corp., Fort Worth	260.81	334.70
Hobbs, Henry, Wichita Falls	4,597.06	6,254.18
Handrick, A., Moran	239.13	258.26
Hemby, J. M., Electra	1,165.19	1,472.04
Hinson, G. D., and R. V. Tidwell, Graham	3,318.95	4,277.12
Hughes, Wm. K., trustee, St. Louis, Mo.	802.94	1,010.69
Hardy Oil Co., Wichita Falls	3,169.99	4,419.86
Hoffman & Page, Eastland	8,917.17	12,480.91
Herbert Oil Co. of Texas, trustee, Fort Worth	5,223.64	6,969.04
Hickok Producing & Development Co., Toledo, Ohio	668.52	888.02
Hanlon Gasoline Co., Tulsa, Okla.	2,996.05	3,862.78
Howard Petroleum Corp., Tulsa, Okla.	759.62	867.09
Hueco-Ranger Oil Co., El Paso	405.19	571.32
Hopkins, S. A., Cisco	404.61	481.49

I

Ingram, J. A., Shawnee, Okla.	872.45	911.51
Ilseng Production Co., Fort Worth	234.25	324.08
Infield Petroleum Co., Austin	863.73	1,005.62
Idaho Oil Co., San Antonio	1,257.92	1,392.27
Independent Oil & Gas Co., Tulsa, Okla.	430,461.09	291,546.07
Isaacs, B. K., Fort Worth	828.87	970.54
Irick Oil Co., Waskom	157.24	189.72

J

Jacob Oil & Gas Co., Graham	362.00	466.97
Julia Oil Co., Sour Lake	3,565.09	4,278.10
Jones, Hugh, Burkburnett	2,451.00	3,167.08
Junior Oil Co., Houston	1,660.54	2,507.63
James, Tom, Albany	7,560.48	10,331.38
Jackson, J. S., trustee, Sour Lake	4,653.16	5,583.80
Jackson Co., San Antonio	1,180.60	1,317.23
Judson Oil Co., Tulsa, Okla.	7,091.58	9,708.32
Jones, J. E., Wichita Falls	1,375.44	1,877.98
Janellen Oil Co., Tulsa, Okla.	115.00	132.34
Japhet Production Co., Houston	5,999.00	5,157.51
Jones, J. A., Moran	328.04	463.33
Jones, W. A., Minerva	819.70	906.45
Jones, Edwin M., El Dorado, Ark.	13,661.92	17,224.80
Justin Oil Corp., et al, Wichita Falls	9,269.46	13,086.04
Johnson Bros., San Antonio	6,875.21	8,015.60

K

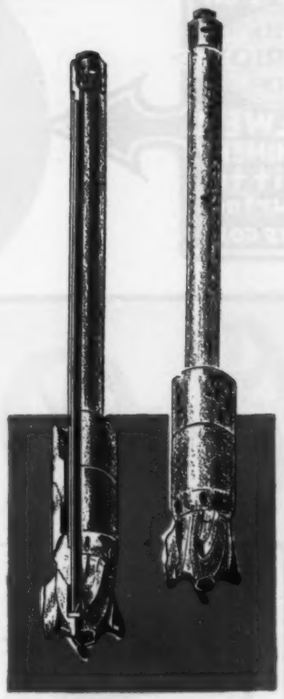
Kistler, Frank E., & Co., Littleton, Colo.	5,687.54	4,905.22
Kate Bell Oil Co., Dallas	970.84	1,317.59
King Royalty Co., Wichita Falls	51,586.65	69,791.68
Kirby Petroleum Co., Houston	29,368.40	20,584.12
Klemcke, George, trustee, Von Ormy	1,787.69	1,757.83
Keener Oil & Gas Co. of Texas, Tulsa, Okla.	4,821.73	6,199.48
Killam, O. W., Laredo	76,341.35	62,451.14
Kokomo Petroleum Co., Gorman	453.00	602.23

(Continued on Next Page)

Man—

Without tools he is nothing. With tools he is all.—

Thomas Carlyle



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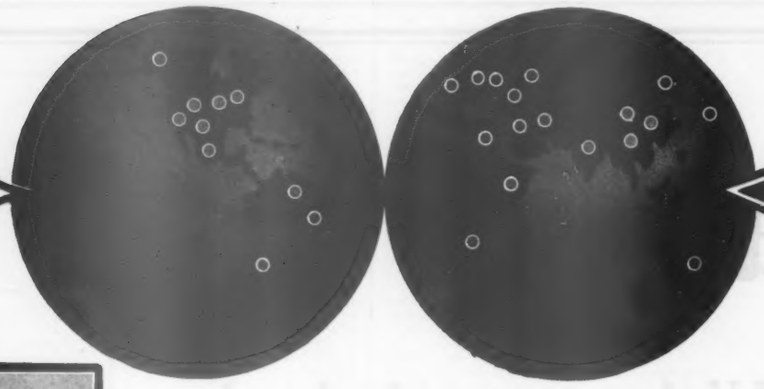

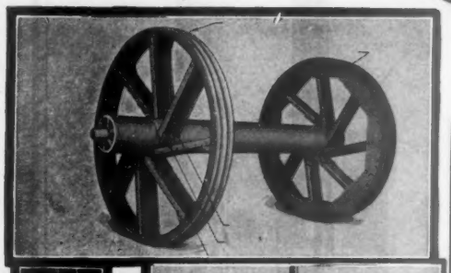

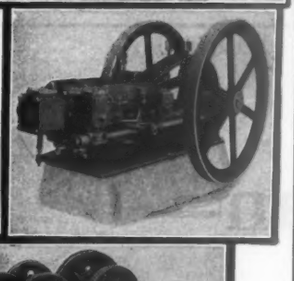

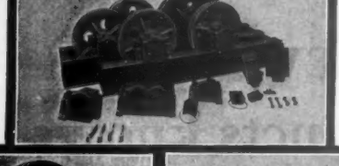

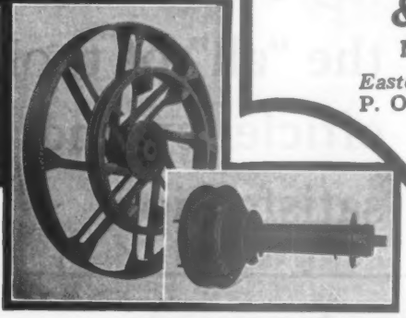

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Bulletin No. 4—Gas Engines, Reversible Clutches, etc.
Bulletin No. 5—Band Wheel Powers, Geared Powers, Pumpers, Idlers, etc.
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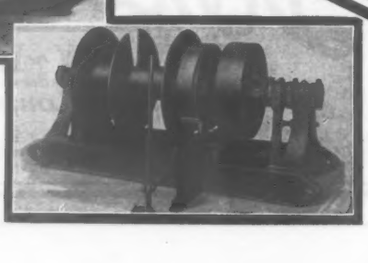

MARION MACHINE, FOUNDRY & SUPPLY CO., Marion, Indiana

Gentlemen:

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Name.....
City.....
State.....

Name, address—	Barrels	Value
Kahle, Gracey & Diver, Bridgeport, Ill.	4,757.35	2,854.41
King & Daniel, Wichita Falls	6,262.86	8,814.65
Kolp, C. F., Electra	23,624.42	30,011.32
Kemrow Co., Wooster, Ohio	13,126.47	18,141.16
Kuhlemeier-Kleiner Oil Co., Cisco	708.16	939.97
King, Anna B., Muskogee, Okla.	380.50	247.30
Kershaw, L. R., Muskogee, Okla.	1,141.50	741.90
Keck Investment Co., Los Angeles, Calif.	7,676.00	4,989.40
Kewanee Oil & Gas Co., Titusville, Pa.	150,800.16	200,397.78
Koenig, Max W., San Antonio	21,551.16	17,672.98
Kaufman, L., San Antonio	607.63	594.19
Keystone Production Co. of Texas, Fort Worth	3,463.69	4,766.72
Kent, G. C., Corsicana	20,663.40	26,713.17
Kavanaugh Petroleum Co., Houston	3,774.45	4,855.96
Keller, J. E., Iowa Park	557.41	801.14
Kurz Oil Co., Somerset	478.70	435.11
King, A. A., San Antonio	396.47	489.09
Knotts, F. F., Wichita Falls	511.53	713.73
Kerr, T. P., Corsicana	438.39	558.89
Kimmell & Woofter, Wichita Falls	1,144.70	1,611.52
Kleiner, Charles J., Cisco	16,321.78	21,315.92
Kimbell-Bostic Pipe & Supply Co., Burkburnett	3,009.63	4,183.39
Keen & Woolf Oil Co.-Newton & Little, Shreveport, La.	21,008.19	25,209.85
Kleinfelder, B. F., Breckenridge	517.28	686.39
Kohlman, Richard, Wichita Falls	650.00	750.16
Kansas City, Mexico & Orient Railway Co., Wichita Falls	14,946.09	.....
L		
Lloyd Oil Corp., Fort Worth	13,559.10	17,048.75
Linedo Oil Co., Lincoln, Neb.	1,825.13	1,460.11
Lowe, Delaney & Carter, De Leon	307.77	240.12
Laning, Mrs. R. A., Wichita Falls	6,731.51	9,513.16
Lackey, W. G., Tulsa, Okla.	3,636.38	4,834.66
Liberty Oil & Gas Trust, Baltimore, Md.	219.68	257.01
Lowry Oil Corp., Wichita Falls	5,628.81	7,635.84
Lewis Production Co., Pittsburgh, Pa.	19,618.47	24,829.14
Lesh, John L. & Co., Wichita Falls	9,143.06	5,897.71
Letwin & Lippett, Breckenridge	11,608.89	15,345.59
Leonard, Geo., Somerset	570.46	559.06
Leonard Oil Co., Somerset	225.01	234.89
Lefors Petroleum Co., Lefors	8,364.59	8,308.26
Long, C. B., Wichita Falls	73.32	90.18
Louisiana Oil Refining Corp., Shreveport, La.	120,565.48	88,454.22
Landreth Production Corp., Fort Worth	14,084.84	20,017.01
Lain Oil Co., Somerset	1,276.45	1,353.28
Lucey Petroleum Corp., Dallas	289.09	365.47
Lake Graham Oil Co., Houston	2,557.00	3,189.53
Lea & Daniel, Wichita Falls	4,981.47	6,529.96
Lea & Daniel, Wichita Falls (12-31-28)	1,201.60	1,750.70
Landreth Production Corp., Fort Worth	6,796.85	8,139.30
Lewis, J. E., & Co., Eastland	3,178.50	4,190.38
Lane, J. G., et al, Amarillo	28,573.06	20,557.40
Len-Cook Oil Co., Electra (12-31-28)	579.67	904.28
Len-Cook Oil Co., Electra	553.20	798.43
Lake View Oil Co., Sour Lake	12,313.21	14,775.85
Lesh & McCall, Nocona	23,479.04	14,087.42
Lesh, Kilcrease & Co., Nocona	2,377.21	2,139.49
Lockhart & Co., Los Angeles, Calif.	46,355.35	47,448.48
Lebow, C. H., Tulsa, Okla.	1,130.43	1,583.93
Lowenstine Oil Co., Rockdale	1,004.76	1,102.52
Lawson, Eugene B., Tulsa, Okla.	60,674.46	77,813.46
Levy, Leonard M., trustee No. 2, Fort Worth	1,455.80	2,124.02
Levy, Leonard M., trustee No. 1, Fort Worth	2,810.68	4,199.16
Lone Star Gas Co., Dallas	7,957.70	11,259.26
Leiser-Rochmill Production Co., Fort Worth	1,385.65	2,107.44
Little, Wm., Breckenridge	307.54	363.36
Lytle, C. F., Mexia	6,523.00	8,055.86
Lomax, Thornton, Jr., Wichita Falls	2,597.92	3,613.75
Little Caddo Synd., Fort Worth	946.80	1,255.88
Lee, Homer, Wichita Falls	1,718.22	2,382.74
Lytle Oil Association, Lytle	238.83	211.49
Loggie and Arendt Oil Co., Albany	2,066.00	2,500.00
Last Chance Gas Co., Pampa (12-31-28)	4,094.00	4,556.72
Lewis, J. E., et al, Eastland	1,030.26	1,308.61
Lee & Simon, Cisco	188.96	292.94
Lynn Oil Co., Inc., Brenham (12-31-28)	715.72	322.07
Lynne Oil Co., Inc., Brenham (9-30-28)	3,042.99	1,369.34
M		
Melat Oil Co., Fort Worth	8,459.30	10,186.94
McGinley-Sigler Co., Fort Worth (12-31-28)	225.75	118.52
McGinley-Sigler Co., Fort Worth	165.50	86.89
McLester Oil Co., Eastland	17,587.92	27,156.14
May Camp Drilling Co., Fort Worth	1,389.30	1,734.64
McNallen & Letwin, Breckenridge	350.68	353.46
McFall, J. M., Wichita Falls	1,039.96	1,428.76
McJunkin, Florence, et al, Tulsa, Okla.	485.42	736.34
Mason, J. F., Putnam	3,242.58	4,447.11
Massie, J. H., Wichita Falls	15,778.59	21,079.50
Moran, W. J., Wichita Falls	2,680.75	3,776.44
Mid-Continent Holding Corp., Wichita Falls	4,664.74	5,676.10
Minor Oil Co., Beaumont	8,068.23	9,681.87
Medina Oil & Gas Co., San Antonio	209.71	223.49
Mid-Kansas Oil & Gas Co., Findlay, Ohio	1,781,851.38	1,186,545.86
M. & V. Oil Co., Wichita Falls	4,706.34	6,392.28
Magnolia Petroleum Co., Dallas	2,726,878.64	2,509,717.01
McIlroy Oil Co., Inc., Amarillo	45,295.95	43,125.78
McDonald & Campbell, Dallas	4,294.92	5,985.21
Maer & Staniforth, Wichita Falls	1,579.69	1,902.15
Marshall, Geo. S., Laredo	10,291.46	8,233.16
Mennis, G. W., Wichita Falls	4,007.94	5,483.64
McNamara Oil Co., Beaumont	2,336.06	2,803.28
McCormick & Noak, Rockdale	75.98	89.65
McChesney, Nancey, Olney	3,836.03	5,348.12
Morton, A. D., Tulsa, Okla.	556.83	668.20
Moore, C. O., Oil Corp., St. Louis, Mo.	4,165.25	4,864.52
Mann, Floyd, Graham	1,889.68	2,497.21
Mann, F. A., Graham (Grenshaw lease)	278.00	394.76
Mitcham, G. P., Cisco	1,350.35	1,795.97
Minntex Oil Corp., Wichita Falls	616.41	906.79
McCrary, E. W., Tulsa, Okla.	4,701.90	5,778.50
McCutcheon, C. E., trustee, Wichita Falls	7,709.26	10,383.59
Moss & Urschel, Dallas	17,362.10	21,844.84
Moss, Urchel & Keyes, Dallas	7,621.34	9,387.41
Mann & Forbes, Graham	2,014.60	2,862.35
Moore, F. L., trustee, Tulsa, Okla.	2,409.96	3,147.63
Mook-Texas Oil Co., Fort Worth	9,375.17	12,194.74
Mayberry, C. R., & Co., San Antonio	2,928.84	2,343.06
McCall, C., trustee, Nocona	603.83	543.45
McDaniel Oil Corp., Cisco	4,852.23	7,116.59
Minnehoma Oil & Gas Co., Tulsa, Okla.	5,915.94	4,941.76
Moutray Oil Co., Abilene	97,307.21	130,201.76
Meridian Petroleum Corp. of Texas, Tulsa, Okla.	2,866.59	3,429.12
McGraw Oil Co., Tulsa, Okla.	1,450.59	1,281.76
McMurray, J. L., et al, Cisco	2,319.41	3,220.63
Meredith & Gant, Wichita Falls	2,543.26	2,918.00
McBride, W. C., Inc., St. Louis, Mo.	6,838.87	8,111.22
Merrick & Bristow, Ardmore, Okla.	180,537.59	119,713.16
Merrick & Lamb, Ardmore, Okla.	22,025.95	17,620.75
Mendenhall Oil Co., Cisco	1,995.96	2,635.45
Marquette Oil Co., Tulsa, Okla.	4,832.47	5,436.40
Madison Oil & Gas Co., Electra	5,288.34	7,472.39
Marnet Oil & Gas Co., Tulsa, Okla.	3,633.87	4,694.16
Mordyan Petroleum Co., Pampa	12,655.09	14,597.74
Milham Corp. of Texas, San Antonio	12,727.61	17,690.53
Mecom Oil Co., Liberty	3,708.77	4,450.50
Montgomery, Rea-Montgomery, Sedwick	1,755.10	2,295.46
McDonald, A. C., and M. C., Putnam	4,122.45	5,396.90
Midwest Exploration Co., Amarillo	106,651.10	119,234.34
Medio Oil Co., San Antonio	948.90	1,186.13
Macknold Co., San Antonio	275.02	286.32
Midwest & Gulf Co. of Texas, trust estate, Tulsa, Okla.	1,439.76	1,559.10
Moore, C. O., Oil Corp., St. Louis, Mo. (12-31-28)	5,154.31	6,811.45
Minerva Petroleum Co., Minerva	1,103.03	1,420.29
McCarter, R. C., Cisco	375.44	542.80
Mills & Garitty, Corsicana	1,932.98	2,280.91
Martin, Drake & Jones, Houston (12-31-28)	7,939.42	9,527.30
Matador Oil Corp., Amarillo (9-30-28)	43,098.25	20,027.17
Moore, N. A., Eastland	2,656.85	3,460.59
Mues & McDermott, Fort Worth	379.59	465.38
Menke, John G., Wichita Falls	1,355.18	1,796.06
McKanna, James E., agent, Wichita Falls	45,252.44	59,232.88
McNallen & Griffin, Tulsa, Okla.	4,418.64	5,744.84
Magee Brothers, Electra	855.78	1,254.54
McCarty Oil Co., Wichita Falls	78,205.35	111,565.48
McMan Oil & Gas Co., Tulsa, Okla.	550,013.66	452,060.05
Maxwell, J. C., Fort Worth	88,036.96	58,832.02
Mid-Continent Petroleum Corp., Tulsa, Okla.	11,986.19	15,583.12
Madden & Hunt, Olney	37,955.70	54,295.53
Marland Production Co., Ponca City, Okla.	1,352,906.70	1,156,737.88
Martin & Hamilton, Wichita Falls	35,078.67	43,778.67
Miller & Miller, Putnam (12-31-28)	272.21	409.51
Miller & Miller, Putnam	216.99	279.90
Marts, E. R., Dallas (5-9-28 to 3-31-29)	12,859.60	21,254.59
Murchison Oil Co., Dallas	274,287.54	157,855.34
Millican Oil Co., Burkburnett (April, 1925 to March 31, 1929)	7,858.56	14,696.33
Mclester Oil Co., Breckenridge (12-31-28)	3,755.00	5,278.56
McLester Oil Co., Breckenridge	2,422.00	3,069.96
Moody Corp., Tulsa, Okla.	824,743.53	680,410.21
Meredith, J. D., Moran	4,220.61	4,630.62
N		
Noble Oil & Gas Co., Tulsa, Okla. (12-31-28)	5,398.03	7,590.00
Noak & Lanning-Phillips & Perry, Rockdale	154.47	182.40
Nabob Oil & Gas Co., Amarillo	10,269.54	11,688.52
Noak & Lanning, Shelton, Rockdale	314.39	396.64
Noak Oil Co., Rockdale	1,171.84	2,234.62
North Fork Oil Co., Amarillo	4,083.72	4,851.38
Nutt & Gates, Wichita Falls	1,504.99	2,128.36
Noble Oil & Gas Co., Tulsa, Okla.	4,618.83	5,849.60
Number Nine Oil Co., Tulsa, Okla.	2,330.24	3,191.76
Nimrod Oil Co., Dallas	250.88	405.53
New Domain Oil & Gas Co., Pittsburgh, Pa.	1,497.57	1,410.77
Navarro Oil Co., Houston	194,422.04	227,399.64
National Oil Co., San Antonio	763.10	728.94
Newton-Palmer Oil Co., Rockdale	507.98	636.95
Newport & Ohio Petroleum Co., Newport, N. Y.	484.35	618.93
Norman Oil Co., Wichita Falls	755.46	1,119.36
Necessity Oil Corp., Eastland	1,087.40	1,350.91
Nash & Windfohr, Graham	9,759.02	13,907.23
Nash & Windfohr Oil Corp., Graham (4-1-27 to 12-31-28)	71,130.47	106,209.89
O		
Oklahoma Petroleum & Gasoline Co., Tulsa, Okla.	103,528.25	184,533.71
Olney Oil & Refining Co., Olney	573.86	770.29
Oklahoma Petroleum & Gasoline Co. of Texas, et al, Tulsa, Okla.	14,327.57	18,172.22
Oil Investment Co., Wichita Falls	2,750.38	3,568.53
Omohundro, W. B., Wichita Falls	16,402.57	22,578.57
Orange Petroleum Corp., Orange	30,815.19	36,032.05
Overby, J. D., Iowa Park	443.33	623.23
Operators Oil Co., Tulsa, Okla. (12-31-28)	22,026.43	25,440.12
Operators Oil Co., Tulsa, Okla. (9-30-28)	9,579.60	11,374.59
Ocean Oil & Refining Co., El Paso	1,064.89	1,086.19
Osborne, R. R., et al, Amarillo (12-31-28)	1,743.41	2,343.35
Oriental Oil Co., Dallas	415.40	510.74
Old Colony Oil Co., Dayton	1,464.65	1,757.58
Owenwood Pool No. 3, J. W. Robbins, trustee, Fort Worth	3,630.00	4,301.36
Onyx Oil Co., Houston	32,487.79	28,868.55
Optimist Oil Co., Electra	3,163.78	4,167.05
Oktaha Co., Tulsa, Okla.	697.51	878.76
Olean Petroleum Co., Bristow, Okla.	20,993.53	14,548.91
Osage Development Co., Bartlesville, Okla.	1,274.76	1,019.80
Oil Operators Trust, Fort Worth	3,797.70	4,569.98
Ohio Somerset Oil Co., Cleveland, Ohio	1,453.26	1,525.93
Operators Oil Co., Tulsa, Okla.	65,449.64	78,055.07
Old Ocean Oil Co., Kansas City, Mo.	4,032.35	3,389.15
Owen-Sloan Oil Co., Big Spring	140,729.26	92,043.38
Ohio-Texas Oil Co., Inc., Albany	115,115.00	115,565.38
Oldom, Wm. P., Iowa Park	1,149.00	1,694.46
Ocean Oil & Refining Co., El Paso	977.00	919.61
Osborne, R. R., et al, Pampa	976.59	1,236.68
Omilak Oil Co., Spokane, Wash.	159.12	171.55
O'Neal, John, Wichita Falls	11,017.96	15,487.44
P		
Petroleum Producers Co., Wichita Falls	102,390.36	126,773.43
Phillips Petroleum Co., Bartlesville, Okla.	1,408,472.29	1,552,185.58
Prairie Oil & Gas Co., Independence, Kans.	1,454,272.28	1,262,236.82
Palmer & Birch, Inc., Wichita Falls	19,181.55	26,577.99
Perkins and Cullum, Wichita Falls	28,483.30	39,226.44
Panhandle Refining Co., Wichita Falls	111,087.25	151,529.04
Petroleum Producers for account of C. E. McCutchen, Wichita Falls	990.13	1,382.70
Pandem Oil Corp., Wichita Falls	21,174.52	28,007.53
Pilkinton, F. L., Burkburnett	1,852.02	2,267.98
Payne, F. G., et al, Wichita Falls	3,658.40	5,149.48
Pace, Geo. L., Wichita Falls	718.77	943.21
Pois and Johnson, Wichita Falls	567.74	785.49
Pois, Fine and Schuiz, Wichita Falls	1,060.30	1,483.03
Pace & Ward, Breckenridge	2,136.22	2,870.40
Producers & Refiners Corp. of Texas, Independence, Kans.	5,474.53	7,294.23
Perkins, J. J., Wichita Falls	2,719.30	3,639.96
Pennock Oil Corp., Tulsa, Okla.	18,560.09	21,317.63
Price-Russell & Co., Ranger	3,388.24	5,195.09
Paull Oil Co., Graham	17,192.57	24,295.86
Producers Supply & Tool Co., Marietta, Ohio	444.38	5,811.41
Pemeta Oil Co., Fort Worth	7,012.36	9,397.88
Peery's, Thos. H., portion of C. W. Boller, et al, Wichita Falls	1,175.75	1,676.62
Parry Oil Co. of Texas, Inc., Fort Worth	472.97	586.83
Piper, L. E., trustee, Vernon	2,053.26	2,693.18
Pickrell, Frank T., and Cranfill Bros. Oil Co., Fort Worth	818.54	532.05
Pollard, W. E., and C. E., Pampa	6,342.88	7,945.65
Producers Credit Co., Llano	603.43	758.80
Powell, H. J., San Antonio	7,534.31	6,796.13
Portland Drilling Corp., Wichita Falls	834.81	1,103.47
Powell, J. L., Wichita Falls	471.11	619.75
Piney Oil & Gas Co., New York, N. Y.	4,052.58	3,550.25
Pure Oil Co., Chicago, Ill.	2,220,558.10	1,728,646.66
Pois, M., trustee, Wichita Falls	296.36	400.42
Paraffine Oil Co., Houston	13,602.40	16,322.88
Pois, M., et al, Wichita Falls	4,793.06	6,607.69
Py-Tex Oil Co., Winchester, Ky.	1,121.05	1,721.88
Pickens & Lewis, Dallas	549.60	692.57
Putnam Oil Co., Tulsa, Okla.	43,404.36	57,044.30
Progressive Production Co., Kansas City, Mo.	1,625.99	2,225.16
Pickrell, Frank T., and Cranfill Bros. Oil Co., Fort Worth	8,015.83	5,210.29
Pratt, Thos. H., Brenham	303.20	283.00
Phair, F. L., and L. W. Wright, Houston	112.01	78.41
Powers Production Co., Houston	1,879.96	1,733.26
Prairie Oil & Gas Co.-Prairie-Shamrock Operating Acct., Independence, Kans.	66,290.15	76,256.19
Primrose Oil Co., Sour Lake	1,203.45	1,444.13
Paggi Bros. Oil Co., Beaumont	10,763.85	12,916.61

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Name, address—	Barrels	Value
Paggi, Chase & Co., Beaumont	684.20	821.04
Producers Drilling Co., Wichita Falls	5,537.82	7,302.16
Poor Boy Oil Co., Rockdale	535.52	656.01
Petroleum Investment Co., Wichita Falls	3,424.67	4,678.93
Phillips, J. R., (Currie), Amarillo	1,645.20	1,663.81
Phillips, J. R., (Invader Drilling Co.), Amarillo	7,536.46	6,462.05
Phillips, J. R., (Blasdel), Amarillo	296.72	213.64
Phillips, J. R., (Heywood), Amarillo	6,951.01	7,368.51
Plymouth Oil Co., Pittsburgh, Pa.	44,151.20	28,698.28
Philp Bros., Beaumont	1,893.59	2,272.30
Pharis Oil Co., Amarillo	2,778.00	2,778.00
Pivoto, M. E., Sour Lake	3,370.60	4,056.70
Phillips, W. G., and J. B. Milam, Chelsea, Okla.	66.59	83.90
P-M Drilling Co., W. E. Ross & W. L. Samuels & A. J. Fraley, Chelsea, Okla.	143.72	143.72
Palo Duro Oil Co., Amarillo	8,676.96	7,978.48
Paramount Oil Royalties, Inc., Brownwood	833.04	886.07
Prairie Lea Production Co., San Antonio	12,900.97	10,676.17
Poole, B. O., Batson	2,383.17	2,859.80
Pioneer Oil, Gas & Refining Co., Danville, Ill.	1,261.13	1,310.95
Pantex Oil Co., Boston, Mass.	10,827.00	11,742.70
Pitzer & West, Breckenridge	23,053.76	31,122.57
Putnam Supply Co., Brownwood (3-31-28 to 3-31-29)	1,212.00	1,648.15
Q		
Quincy Oil Co., Vernon	154.58	202.50
Quinn, J. W., et al, Eastland	10,186.80	15,484.17
Quartet Oil Co., Tulsa, Okla.	7,223.69	10,407.11
R		
Ramsey, E. H., Rising Star	419.20	632.54
Robert Oil Corp., Breckenridge	65,647.16	91,996.00
Ruthada Oil Co., Oklahoma City, Okla.	15,388.17	14,679.12
Roberts, H. W., Wichita Falls	2,658.78	3,784.55
Red River Oil Co., Tulsa, Okla.	17,431.54	24,021.90
Rhodes & Highers, Breckenridge	7,877.68	10,398.52
Robinson, O. D., Pittsburgh, Pa.	1,474.55	1,567.09
Ray & Massie, Wichita Falls	14,384.78	16,886.03
Rathke Oil Co., Wichita Falls	24,498.77	33,254.86
Rock Island Oil Co., Amarillo	354.90	333.07
Reno Oil Co., Sistersville, W. Va.	55,143.08	76,373.34
Rockdale Junior Oil Co., Rockdale	222.05	275.44
Ryan Consolidated Petroleum Corp., Tulsa, Okla.	94,051.97	126,672.07
Rockwell, J. A., & Co., Warren, Pa.	237,568.00	3,099.24
Rock Island Oil Co., Amarillo	1,161.36	1,103.23
Rycade Oil Corp., Houston	205,943.62	204,002.86
Root, C. M., et al, Eastland	23,332.00	31,617.00
Republic Production Co., Houston	937,707.10	799,300.51
Ramsel, W. T., Oil Co., Rockdale	1,916.10	2,414.28
Ross Segunda Oil Co., Laredo	588.70	470.96
Ross, James F., Laredo	4,304.04	3,440.32
Ross, Amigos Oil Co., Laredo	11,105.82	8,884.66
Ruyle Farm & Oil Co., Wichita Falls	6,962.27	9,714.92
Roeser & Pendleton, Inc., Fort Worth	386,348.08	532,099.32
Rolyat Production Co., Houston	10,668.00	12,325.35
Roy Long Oil Co., Navasota	2,556.07	3,299.16
Reed, Crenshaw & Glass, Nowata, Okla.	12,915.26	17,627.77
Robinson, Arthur D., Dallas	7,550.43	8,389.56
Red Bank Oil Co., Tulsa, Okla.	16,508.23	22,454.08
Ramming & Saunders, Wichita Falls	5,003.76	7,256.65
Ramming Staley & Ramming, Wichita Falls	736.49	992.75
Ramming, R. W., Wichita Falls	5.46	6.82
Rochmill, Henry, Jr., Fort Worth	422.54	481.82
Rex-Tex Oil Company, Winchester, Ky.	1,121.05	1,721.88
Reserve Petroleum Co., Tulsa, Okla.	884.03	1,321.57
Rio Bravo Oil Co., Houston	422,823.36	490,469.60
Riner & Bailey, Wichita Falls	23,635.74	31,639.09
Richardson & Kelsey, Fort Worth	25,503.17	16,577.02
Robinson, J. B., Sour Lake	210.56	252.67
Reeder & Scarborough, Wichita Falls	1,220.41	1,671.43
Rountree, White & Simpson, Rockdale	871.53	1,133.85
Ruby Oil Co., Minerva	237.62	304.39
Reiter-Foster Oil Corp., Tulsa, Okla.	24,009.02	31,553.72
Rubsam & Hunter, Wichita Falls	2,086.47	2,774.97
Richardson & Kelsey, Fort Worth	67,499.50	43,874.64
Ramsey & Decker, Breckenridge	5,843.24	8,396.29
Rex Petroleum Corp., Vinton, La.	19,962.92	23,955.51
Russell & Wilson, Wichita Falls	3,818.97	4,714.70
Root & Rhodes, Eastland	4,386.00	5,812.00
Root, C. M. (Root Drilling Co.) Eastland	15,368.00	20,402.00
Root, C. M., Eastland	9,414.00	12,933.00
Ross & Slicker Oil Co., Cisco	849.12	1,158.77
Robertson, R. R., Wichita Falls	14,772.85	18,551.92
Reeder, R. S., et al, Wichita Falls	7,479.61	10,317.91
Ranell Oil Co., Oklahoma City, Okla.	5,331.38	7,145.55
Reclamation Co., Fort Worth	6,624.58	8,555.29
Riggs & Oliphant, Graham	17,327.41	22,820.75
Reinhart, M. J., Tr., Oklahoma City, Okla.	553.07	759.21
Rowe, J. G., Wichita Falls	474.94	619.82
Redmond, W. J., (12-31-28) Brownwood	526.50	721.35
Redmond, W. J., Brownwood	528.50	639.48
Dwight M. Ross (4-27 to 3-31-29) Wichita Falls	10,141.87	14,177.40
Rentex Oil Co., San Antonio	7,060.72	7,958.55
Ross, C. E., Burkburnett	578.10	763.92
S		
Schermerhorn Oil Co., Minneapolis, Minn.	240,842.26	159,266.80
Stidham & Thrasher, Electra	436.36	283.63
Somerset Oil Co., Easthampton, Mass.	72.00	69.00
Stock, H. I., Cisco	2,511.03	3,168.07
Sheldon, C. P., Electra	7,467.62	9,822.03
Shallow Sand Oil Co., Fort Worth	1,080.41	1,423.98
States Oil Corp., Eastland	39,841.09	56,705.33
Superior Oil Producing Co., Tulsa, Okla.	2,651.92	3,030.75
Smith, Mrs. Hattie E., Burkburnett (7-27 to 12-31-28)	3,159.41	4,303.06
Smith, Mrs. Hattie E., Burkburnett	328.20	411.86
Scott & Walker, Albany	2,440.72	2,757.29
Sheffield, Frank H., Houston	2,156.36	2,598.43
Sheffield, Frank H., Houston (12-31-28)	1,975.33	2,370.40
Skelly Oil Co., Tulsa, Okla.	1,265,559.48	953,201.43
St. Marys Oil & Gas Co., St. Marys, W. Va.	34,901.41	37,747.84
Sun Oil Co., Dallas	1,338,139.50	1,347,347.82
Smith, R. E., et al, Houston	24,685.15	30,695.23
Skla-Tex Petroleum Co., Amarillo	29,202.91	29,714.11
Stella Oil Co., Beaumont	12,730.31	15,276.39
Smith & Bynum, Amarillo	3,204.79	3,241.16
Smith, Mrs. James L., Amarillo	9,232.35	10,304.42
S. & W. Oil Co., Amarillo	18,212.78	15,965.28
Stock, Anna B., Cisco	211.82	266.91
Southern Crude Oil Purchasing Co., Fort Worth	3,984,993.08	2,590,245.57
Snowden & McSweeney Co., New York, N. Y.	120,038.51	167,553.67
Shaw Oil Co., Wichita Falls	59,133.05	79,105.85
Seaboard Oil & Gas Co. of Texas, Wichita Falls	25,571.81	35,932.45
Staley, J. L., & Co., Wichita Falls	3,651.64	4,766.86
Staley, Wynne & Co., Wichita Falls	157,298.86	200,608.34
Shackelford, F. L., Wichita Falls	812.31	154.47
Schlaffke, Edward, Electra	325.31	410.94
Superior Oil Production Co. and George E. Lamb, Brownwood	221.69	272.66
Spring Creek Oil Co., Amarillo	4,914.53	5,064.72
Shell Petroleum Corp., St. Louis, Mo.	3,555,869.91	2,529,844.11
Stekoll, Harry, Tulsa, Okla.	3,191.28	2,685.70
South Texas Petroleum Co., Houston	207,883.53	286,020.96
Sink, Joel, Corsicana	165.00	208.00
Smith-McIntosh & Thomas, Cameron	663.07	707.57
Stroube & Stroube, Corsicana	32,542.44	41,585.64
Simms Oil Co., Dallas	827,280.05	659,543.73
Schimmel Production Co., Fort Worth	29,353.09	34,540.53
Slicker, Homer, Cisco	773.89	948.83
Selby Oil & Gas Co., Tulsa, Okla.	6,570.48	9,608.16
Sand Creek Oil Co., Amarillo	5,263.54	4,876.43
Sinclair Oil & Gas Co., Tulsa, Okla.	134,233.54	188,050.51
Shaw, T. G., Fort Worth	94,904.54	106,075.95
Snider, C. W., Wichita Falls	1,336.61	1,931.30
Sedgwick Oil Co., Tulsa, Okla.	13,952.18	17,287.41
Slick, T. B., et al, Oklahoma City, Okla.	4,700.14	6,979.64
Schaffner-Wilson et al, Markley	1,916.94	2,827.62
Scarborough, W. A., Burkburnett	2,737.09	3,669.39
Sprague Oil Co., Ardmore, Okla.	54,230.17	35,249.60
Summit Oil & Refining Corp., Amarillo	6,250.52	6,301.45
St. Louis Oil & Development Co., Wichita Falls	464.60	579.25
Southern Petroleum Exploration, Inc., Sistersville, W. Va.	20,601.72	24,107.64
Sinclair Oil & Gas Co., Houston	154,212.66	187,706.32
Skinner, E. W., Oil Co., Saratoga	3,996.59	4,451.08
Speed, C. D., Corsicana	303.48	409.56
Smith, McIntosh & Thomas (Branch Coulter lease), Cameron	1,270.52	1,692.48
Steele, Charles F., Rosston, Ark.	301.38	612.89
Shemen Oil & Gas Co., Pittsburgh, Pa. (9-30-28)	76.92	107.74
Shemen Oil & Gas Co., Pittsburgh, Pa. (12-31-28)	77.83	112.96
Syndicate Oil Corp., Rochester, N. Y.	2,517.31	3,614.91
Salado Oil Co., San Antonio	1,676.65	1,706.14
Somerset Crude Oil & Refining Co., Somerset	2,865.18	3,084.63
Smith, E. L., Oil Co., Inc., Mexia	191,463.22	214,896.84
Schaffner, E. N., et al, Cross Plains	1,144.76	1,418.07
Shappell Oil Co., Wichita Falls	47,235.35	64,388.90
Scarborough-Reeder & Cook, Wichita Falls	815.32	1,101.05
S. & O. Oil Co., Houston	809.79	648.63
Standard Oil Land & Leasing Co., Electra	324.15	446.90
Simmons, T. K., Tulsa, Okla.	2,879.69	3,595.45
Summerfield Oil Co., Tulsa, Okla.	237.91	319.03
Stratton, E. F., Pioneer	326.12	377.39
Staley, J. A., Wichita Falls	2,229.87	3,096.78
Swanner, John L., Wichita Falls	2,188.20	2,927.26
Sessions, I. P., Rockdale	352.68	441.85
Southern Exploration Co., Houston	1,461.89	1,846.40
Seybert Brothers, Mooringsport, La.	6,900.39	10,146.40
Saxet Oil Co., Houston	43,151.01	42,578.18
Silk, Bullington & Clark, Wichita Falls (3-31-28)	6,857.06	5,145.57
Silk, Bullington & Clark, Wichita Falls (12-31-27)	6,310.77	4,730.30
Silk, Bullington & Clark, Wichita Falls (12-31-27)	7,403.09	5,552.32
Silk, Bullington & Clark, Wichita Falls (9-30-28)	6,806.66	5,339.87
Silk, Bullington & Clark, Wichita Falls (12-31-28)	4,774.14	3,959.46
Somerset Oil Co., San Antonio (9-30-28)	1,233.02	1,310.45
Somerset Oil Co., San Antonio (12-31-28)	1,232.03	1,338.59
South Texas Petroleum Co., Houston (12-31-28)	119,785.97	161,558.95
Schlicher Oil Co., Beaumont	358.58	477.96
Strelsky, Joe, & Hefley, Rockdale	480.72	624.84
Schoolfield, R. E., Wichita Falls	256.03	315.00
Shattuck, R. H., Dallas	3,196.11	3,969.30
Shoup, O. H., Jr., Colorado Springs, Colo.	3,093.26	4,337.70
Sircovich, A. and Mrs. F. M. Thomas, Houston	552.70	438.93
Stephens & Fisher, Wichita Falls	1,173.00	1,425.61
Sandefer-Atkinson-Daniel Oil Corp., Breckenridge	4,239.84	5,777.50
Swensondale Petroleum Corp., Wichita Falls	9,475.14	12,336.56
Shasta Oil Co., Wichita Falls	613.43	777.22
Sizler Oil Co., San Antonio	987.03	1,158.76
Scott & Britton, Graham	115.80	142.42
Scott & Nance, Graham	2,029.94	2,797.26
Steed, Paul P., Wichita Falls	2,254.39	2,925.03
Steed, Paul P. & A. R. Gaus, Wichita Falls	2,718.55	3,570.08
Steed, Paul P., Wichita Falls	239.74	277.93
Smith, W. B., et al, Eastland	505.15	679.41
Scarborough & Smith, Burkburnett	551.12	631.30
Saratoga Oil Co., Wichita Falls	844.89	1,120.33
Star Drilling Co., Wichita Falls	3,637.70	5,034.99
Smith, M. L. V., Vernon	935.74	1,153.71
Supreme Oil Co., Orange	5,389.15	6,466.97
Snow Oil Co., Riggs & Oliphant, Graham	1,393.01	1,809.89
Stovall, E. C., Graham	10,659.29	15,583.50
Stump, E. J. & Co. Venmex Oil Co., Wichita Falls	7,958.80	11,337.81
San Balt Petroleum Co., Kansas City, Mo.	None	None
Shackelford Oil Co., Ranger	7,868.21	10,761.07
Spencer, E. H. & Co., Burkburnett	2,198.25	4,182.86
Shertzer, C. P., Dewey, Okla.	6,994.10	9,352.04
St. Albans, Ruth, Laredo	695.17	556.12
Sneed Royalty Co., Tulsa, Okla.	2,974.06	2,464.19
T		
Thomas, J. A., Burkburnett	2,408.01	3,239.93
Thurber, C. J., Iowa Park (6-1927 to 12-31-28)	1,616.54	2,124.81
Thurber, C. J., Iowa Park	253.78	312.08
Texon Oil & Land Co. of Texas, Big Lake	173,395.62	105,169.97
Taylor-Link Oil Co., Houston	25,739.89	16,730.93
Texas Consolidated Oil Co., San Francisco, Calif.	14,166.12	19,507.94
Texas Company, Houston	3,606,194.69	4,082,546.05
Texas Pacific Coal and Oil Co., Thurber	306,989.70	319,200.99
Travelers Oil Co., Amarillo	12,496.75	12,645.18
Tillman, J. W., Humble	574.74	609.82
Tucker, W. B., Dallas	1,213.86	1,450.94
Thompson, J. E., Humble	642.00	771.00
Transcontinental Oil Co., Tulsa, Okla.	4,996.59	6,308.42
Transcontinental Oil Co., Tulsa, Okla.	22,203.18	27,116.32
Transcontinental Oil Co., Tulsa, Okla.	1,735,374.96	1,127,993.72
Terry, H. M., Sour Lake	10,861.34	11,695.78
Tholl Oil Co., Beaumont	4,096.59	5,949.16
Turman, L. C., Fort Worth	85,628.45	56,658.49
Turman & Brown, Fort Worth	6,424.31	6,138.07
Timms, L. W., Oil Corp., Amarillo	9,455.00	11,489.20
Timms-Dietsch Oil Corp., Amarillo	6,899.00	8,396.50
Tidal Osage Oil Co., Tulsa, Okla.	7,722.93	8,433.12
Tidal Oil Co., Tulsa, Okla.	230,615.38	181,145.49
Tucker Oil Co., Wichita Falls	81,879.49	105,831.25
Theis Oil Co., Sour Lake	3,841.23	4,633.47
Triangle Petroleum Co., Fort Worth	1,009.23	1,348.09
Tannehill, L. B., Albany	73,708.76	99,255.80
Turman Oil Co., Tulsa, Okla.	17,295.31	23,100.61
Tripplehorn, D. R., Pampa	8,304.50	10,670.74
Talley and Irick, Shreveport, La.	193.92	232.70
Tate-Weekley & Tubb, Fort Worth	6,184.55	4,947.64
Trinity Production Co., Wichita Falls	448.93	600.58
Tegler, F. E., San Antonio	426.16	463.66
Texas Unity Oil Co., Dallas	2,564.03	3,534.58
Trimount Petroleum Co., Shreveport, La.	6,035.65	9,002.72
Texas Petroleum Development Co., Cameron	6,019.24	7,652.84
Texota Petroleum Co., Electra	310.70	466.06
Trans-Bay Oil Co., Galveston	90.00	108.00
Tower & McKanna, Inc., Wichita Falls	9,931.28	14,532.80
Thaxton, W. H., Estate, Austin	394.85	529.09
Towns, M. K., Luling	46,231.15	40,355.00
Teatsorth, L., et al, acct. No. 1, Eastland	2,066.85	3,146.64
Texmont Oil & Investment Co., Amarillo	4,545.56	5,418.65
Texmont Oil & Investment Co., Amarillo (4-5-27 to 12-31-28)	34,931.78	33,972.35
Tyson Oil Co., Sour Lake (12-31-28)	484.67	581.60
Triangle Oil & Gas Co., Rockdale	1,378.68	1,731.92
Thomas, J. A., Burkburnett (1926-27-28)	20,492.14	35,555.73
Texas Oil Corp., Dallas	132.64	173.76
Taylor-Link Oil Co., Houston	20,019.91	13,012.94
Tidwell, H. L., Tr., Graham	1,521.08	1,950.29
Tidwell, R. V., Tr., Graham	4,950.71	6,575.39
Texas Fidelity Oil Corp., Fort Worth	8,112.34	12,416.46
Tripplehorn, J. W. & D. R., Fort Worth	2,483.14	3,013.33
Thomasson, E. M. & Co., Inc., Denver, Colo.	694.41	1,061.33
Texas Pacific Coal and Oil Co., Other Companies For. Thurber	67,511.84	89,875.95

(Continued on Next Page)

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McCord Radiator & Mfg. Co.
DETROIT

Name, address—	Barrels	Value
Townsite Oil Co., Olney	170.20	157.40
Teatsorth, L., et al., acct. No. 2, Eastland	521.88	677.03
Teci Production Co., Breckenridge	2,230.70	2,999.12
Trinity Townsite Co., Dallas	705.96	945.51
Texas Oil Underwriters, Brownwood	676.00	944.68
Taylor-Sibley Syndicate, Dallas	2,389.68	3,291.73
Townsite Oil Co., Olney (3-15-27 to 12-31-28)	3,746.23	8,003.26
Texas Electric Co., Newark, O.	283.37	393.59
U		
Union Production Co., Rockdale	4,440.02	5,516.88
Upland Oil Co., Pampa	2,590.70	3,000.57
United Royalties Corp., Wichita Falls	719.77	1,130.00
United Oil & Fuel Co., Sour Lake	1,212.82	1,455.37
United Producers Co., Wichita Falls	46,535.99	65,449.54
Unity Oil Co., Beaumont	18,057.00	21,590.00
Union Oil & Mining Co., Tulsa, Okla.	9,320.36	11,184.43
United Oil Corp., Wichita Falls	1,497.80	2,063.54
United Petroleum Co., Brownwood (12-31-28)	153.50	201.11
Upland Oil Co., Amarillo	3,130.21	4,149.44
Ungren-Frazier-Gibson-Johnson, Putnam (12-31-28)	262.00	395.56
Ungren-Frazier-Willard, Putnam (12-31-28)	662.50	917.10
Ungren & Frazier, Putnam (12-31-28)	290.25	381.95
Underwood Drilling Co. (Erwin Lease), Wichita Falls	1,161.75	1,506.04
Underwood Drilling Co. (Perkins Lease), Wichita Falls	1,140.75	1,428.24
Underwood Drilling Co. (Ward A Lease), Wichita Falls	3,666.82	4,882.90
Underwood Drilling Co. (U-C-Ward Lease), Wichita Falls	1,822.01	2,441.49
Unice & Carpenter, Houston	5,490.00	5,490.00
V		
Van Cleave Trust, Baltimore, Md.	596.92	887.34
Van Wormer, F. E., Wichita Falls	1,362.00	2,120.63
Valerio Inc., San Antonio	568.94	581.69
Virginia Oil Assn., Fort Worth	2,912.64	3,931.12
Vacuum Oil Co., Houston	24,496.07	35,369.01
Venmex Oil Co. of Texas, Wichita Falls	79,737.70	117,719.24
Val Verde Oil Co., Del Rio	1,765.00	1,942.34
Vergate Oil Co., Tulsa, Okla.	1,111.81	1,656.78
Venmex Oil Co. of Texas, Wichita Falls (12-31-28)	19,712.30	33,032.62
W		
Wallace, Dr. Charles Wm. & Hulda B., Wichita Falls	21,342.88	29,934.01
White, James H., Wichita Falls	11,405.35	16,058.15
Western Oil Sales Corp., Wichita Falls	3,271.42	4,155.35
Wampem Oil Corp. of Texas, Dallas	257.87	317.32
Wilson Drilling Co. (Comet), Wichita Falls	3,826.02	5,497.38
Wilson Drilling Co. (Rathke Lease), Wichita Falls	3,185.80	4,416.93
Wilson Drilling Co. (K. K. "A" & "B" Leases), Wichita Falls	3,039.76	4,356.25
Woodburn Oil Corp., Dallas	4,760.12	6,340.68
Wichita Production Co., Wichita Falls	12,208.75	15,597.03
Wilson, Lee, et al, Wichita Falls	5,257.73	7,221.48
Whitehill Oil Corp., Tulsa, Okla.	4,201.98	5,705.60
Wise and Jackson, Sapulpa, Okla.	5,168.55	6,431.06
Wolfe, A. T., & Son, Wichita Falls	2,976.61	3,691.04
Wo-Mac Oil Co., Wichita Falls	1,530.61	2,107.03
Woody's W. C., 1-6 int., C. W. Boller, et al, Wichita Falls	1,175.75	1,676.62
West, J. H., Cisco	6,549.03	8,670.04
Weaver and Pois, Wichita Falls	2,649.46	3,496.82
Wolf, D. L., Olney	467.82	590.18
Woods, C. D. & C. C., Ranger	824.28	1,018.50
Westheimer & Daube, Ardmore, Okla	1,517.25	1,879.09
Walker, B. S., Breckenridge	1,047.88	1,238.12
Waggoner Refining Co., Inc., Electra	485,127.70	629,046.92
Wilbarger Oil Co., Wichita Falls	1,109.65	1,303.28
West Texas Land Co., Fort Worth	175.04	218.11
Webb Oil Co., Humble	3,886.17	4,663.41
West, Mrs. Bessie M., Houston	2,450.58	2,940.69
Wills Oil Co., Rockdale	1,536.97	1,940.15
Woods & Bennett, Humble	5,637.14	6,764.11
West Production Co., Houston	11,304.83	13,747.27
Woodward & Lee, Houston	8,267.81	8,906.90
Wakefield, M. E., et al, Cross Plains	216.68	292.52
Witcher, W. C., et al, Wichita Falls	370.03	507.75
Witcher, Annie L., Guardian, Wichita Falls	4,900.96	7,216.21
Wilcox, H. F. Oil & Gas Co. of Texas, Tulsa, Okla.	66,738.25	86,700.03
Weiler, H. J., Wichita Falls	237.56	299.32
Wilson Drilling Co., Wichita Falls (K.K."C")	371.23	520.35
Warner-Quinlan Co. of Texas, Dallas	250,128.36	162,583.42
Ward Oil Corp., Ardmore, Okla.	50,707.24	34,314.53
Weiler, J. G., et al, Cross Plains	1,295.89	1,834.64
Webb, J. R., & J. H. Bryant, Corsicana	397.56	357.30
Webb, J. R., Corsicana	249.11	298.93
White & Duncan, Wichita Falls	6,192.24	8,288.84
Westervelt-Noble, et al, Oklahoma City, Okla.	2,996.09	3,935.42
Wentz, L. H. (Oil Division), Ponca City, Okla.	50,355.17	44,350.92
Wheelock & Collins, Corsicana	15,926.44	21,417.82
Witherspoon Oil Co., San Antonio	31,884.20	29,045.96
Witherspoon Refining Co., San Antonio	10,203.64	11,289.21
Wood, Benton, Lesh & McCall, Nocona	6,079.06	5,471.15
White Eagle Oil and Refining Co., Kansas City, Mo.	63,534.00	62,328.76
West Production Co., Houston	7,489.53	8,266.26
Wetzel, Sophie, Oconomowoc, Wis.	4,198.27	3,767.50
Washoma Petroleum Co., Enid, Okla.	3,203.22	4,132.16
Weister, E. P., Tulsa, Okla.	3,710.20	4,756.48
Woodley Petroleum Co., Shreveport, La.	15,926.56	23,619.16
Weldon Oil Co., Saratoga	13,004.93	13,052.42
Watts Oil Co., Houston	5,385.17	5,853.44
Wahpoo Oil Co., Rockdale	1,201.85	1,476.34
Williams, Burt, Wichita Falls	784.33	997.35
Wilson-Broach Co., Beaumont	15,855.71	19,026.85
Why Not Oil Co., Mexia	13,314.00	16,922.04
Williams & Williams, Amarillo	994.66	796.52
Walker, A. C., Albany	3,885.39	4,872.96
World Oil Co., Fort Worth	2,250.14	2,160.13
Warren-Hayes Oil Corp., et al., Cisco	8,450.86	10,406.82
White, Ralph W., Thrift	1,090.70	1,516.33
Wear, G. F., et al, Brownwood	124.09	119.12
Walton, T. J., Corsicana	58.35	66.52
Walton, T. J., Corsicana (4-1-28 to 12-31-28)	183.64	231.79
Walker, Hall, Ranger	630.00	756.00
Walker, Hall, Ranger (1925 to 1928, inc.)	14,400.00	21,366.00
Wills, O. C., Burkburnett	429.17	541.49
Y		
Yount-Lee Oil Co., Beaumont	3,076,092.53	3,535,363.79
York Petroleum Co., Stamford	324.24	412.41
Young Brothers & Alexander, Inc., Fort Worth	7,578.84	10,577.21
Young Brothers & Alexander, Inc., and Woodley Petroleum Co., Fort Worth	15,926.53	23,619.10
Z		
Zadie Belle Oil Co., Fort Worth	651.00	932.09
SUPPLEMENTAL LIST		
Ada Belle Oil Co., Batson	21,461.94	25,152.91
Cranfill & Reynolds, Cisco	394,572.44	364,905.24
Green, Jas. H., & Co., Inc., Brownwood	880.00	1,282.85
Greene Production Co., Fort Worth (1-1926 to 12-31-28)	11,111.14	9,011.02
Grayburg Oil Co., San Antonio	207,758.09	160,763.73
Goodwin, P. B., Breckenridge	2,274.35	2,936.11
Goodwin, P. B., Breckenridge	1,303.07	3,539.38
Goodwin, P. B., Breckenridge (4-1-28 to 12-31-28)	5,358.73	7,673.70
Hobson and Voorhees, San Antonio	780.49	914.25
Hutton Oil Corp., Cisco	10,523.99	11,581.31
Jonray Oil Co., San Antonio	1,169.30	1,173.56
Kirk & Evans, W. L. Holmesey, Tr., Gorman	2,664.44	3,454.56

(Continued on next page)

Name, address—	Barrels	Value
Kay, A. W., Recv., Jones, et al, J. E. Keen Farm, Graham	1,426.11	1,856.39
Kemp, Oscar (Douglas), Burkburnett (12-31-28)	455.00	494.41
Kemp, Oscar (Douglas), Burkburnett	180.00	226.80
King, R. A., Wichita Falls	3,964.54	3,361.92
King, R. A., Tr., Wichita Falls (12-31-28)	5,561.25	5,561.25
Larkin, W. B., Wichita Falls	382.10	509.38
Manning, R. H., Fort Worth	706.12	791.35
Manning, R. H., Fort Worth (12-31-28)	1,398.65	1,630.09
Manning, R. H., Fort Worth (9-30-28)	1,373.40	1,681.20
Ceseaux & Martin, Humble (9-30-28)	5,141.78	6,168.17
Ceseaux & Martin, Humble (12-31-28)	7,333.00	8,801.30
Ceseaux & Martin, Humble	5,807.40	6,986.31
Wilkins, L. A., Burkburnett	2,219.31	2,973.88
Total	68,069,972.87	$63,513,126.22

OKLAHOMA GROSS PRODUCTION, FIRST QUARTER, 1929

(Continued from Page 96)

Name and address—	No. of bbls.	M. ft. gas	Amount
Margaret S. Weeks, Ardmore	.....	72,040	7,178.96
Margaret S. Weeks, Ardmore	6,631.17	.....	7,283.44
Westland Oil Corp., Tulsa	32,147.43	64,963	48,045.39
L. H. Wentz (Oil Division), Ponca City	145,348.59	188,890	214,994.67
Ward Oil & Gas Co., Tulsa	10,125.58	.....	12,117.40
Winona Oil Co. of Delaware, Tulsa	9,803.03	.....	12,381.37
Winona Oil Co. of Delaware, Tulsa	2,607.88	.....	3,332.17
Winona Oil Co. of Delaware, Tulsa	12,865.63	.....	15,456.65
Winona Oil Co. of Delaware, Tulsa	.....	(gas)	6,552.09
Winona Oil Co. of Delaware, Tulsa	8,810.82	.....	10,718.64
Whitehill Oil Corp., Tulsa	7,547.88	.....	8,937.19
Whitehill Oil Corp. (partners), Tulsa	5,594.53	.....	6,660.54
*Whitehill Oil Corp., Tulsa	2,396.42	.....	3,072.03
Wolverine Petroleum Corp., St. Louis, Mo.	170,393.47	.....	200,137.92
Wolverine Petroleum Corp., St. Louis, Mo.	.....	300,020	17,129.12
Y			
*Harriett E. Youts, Shawnee	.....	.....	65,016.40
*C. A. Youts, Shawnee	.....	.....	27,727.50
*L. S. Youngblood, trustee, or Annie Gahagen, Wewoka	.....	.....	19,702.08
*York Petroleum Co., Muskogee	2,797.88	.....	4,388.09
*L. W. Young, Oklahoma City	.....	.....	19,663.97
Z			
Zola Oil Co., Tulsa	13,676.55	.....	15,251.42
L. W. Zimmerman, Los Angeles, Calif.	.....	.....	24,221.43

SEMINOLE AREA HAS PRODUCED MORE THAN 400,000,000 BBLS. OF CRUDE

When R. H. Smith opened the Wewoka Pool in Seminole County, Oklahoma, with a well on the Foster farm, NW SW NW, Section 32-8-8, in May, 1923, he attracted attention to a part of Oklahoma which had long been considered hopeless by many oil operators and production executives. In less than six years the territory opened by Mr. Smith has produced over 400,000,000 bbls. of high grade crude oil from pools in Seminole. Hughes and Pottawatomie Counties which had no existence previous to Mr. Smith's discovery.

The Wewoka Pool produced 27,307,102 bbls. up to March 1, 1929; Cromwell, Seminole County, 36,529,885 bbls.; Papoose-Gilcrease, Hughes County, 19,175,795 bbls.; Weleetka, 2,143,269 bbls.; Seminole City, 75,249,262 bbls.; Earlsboro, 75,593,183 bbls.; Bowlegs, 62,599,825 bbls.; Little River, 34,712,487 bbls.; Searight, 18,836,570 bbls.; Maud, 2,039,953 bbls.; Mission, 425,945 bbls.; Carr City, 576,738 bbls., and St. Louis, 27,084,784 bbls., all of which, together with the many scattered pools in the three counties of Hughes, Seminole and Pottawatomie have produced 5,401,181 bbls., yielded a total of 387,675,979 bbls. up to March 1. Since that date sufficient production has been recovered to more than put the general area over the 400,000,000-bbl. mark.

The production of the leases in the pools making up the Seminole Field and the St. Louis Pool up to March 1 are shown below. They are the latest figures on production by leases available. The Seminole Field passed the 300,000,000-mark in production one day in March. The field up to that time had produced over 16,000 bbls. per acre since mid-year 1926 when the first Wilcox sand well was completed.

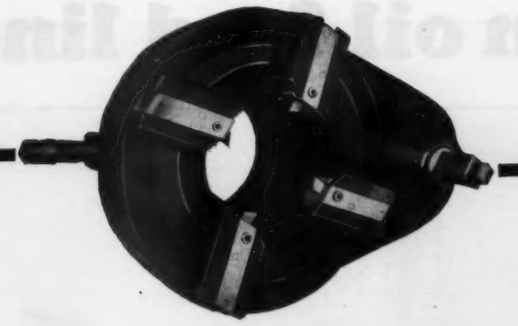
SUMMARY
Total Recovery of Leases in Seminole Area to March 1, 1929

Pool—	No. prod. wells	Total recovery
Earlsboro	257	75,593,183
Little River	325	34,712,487
Maud	64	2,039,953
Mission	69	425,945
Carr City	21	576,738
Bowlegs (Lima)	309	62,599,825
Seminole	276	75,249,262
Searight	69	18,836,570
St. Louis	249	27,084,784
Grand total	1,639	297,118,747

EARLSBORO
Total Recovery of Leases to March 1, 1929

		No. prod.	Total
Amerada:			
Anderson	15- 8- 5	2	2,202,618
Cowden	4	7	2,162,511
Roger	3	2	711,563
Atlantic-Gypsy:			
Delaware	13	(†)	1,038
Atlantic et al:			
Foreman	18	1	56,068
Barnsdall:			
Brown	10	4	1,310,977
F. Bruner	2	2	312,282
N. Bruner	10	3	863,829
Cudjo	14	1	14,874
D. Davis	11	3	673,596
J. Davis	11	4	670,658
M. Davis	11	2	363,959
Gibson	9	7	2,228,020
Hearn	15	1	4,854
Ingram	1	8	1,529,416
Pack	10	4	284,326
Peter	10	4	241,264
Sebolka	15	1	889,227
R. Sullivan	11	1	167,232
Sullivan-Harjo	10	2	28,368
D. Smith	15	(*)	126,496
Washtuke	12	3	948,747
Barnsdall & Atlantic:			
Sango	1	2	1,867,040
Hosley	4	(*)	6,411
Burke Gries:			
Wisener	6- 9- 6	2	210,388
Burke Gries et al:			
Mayes	1- 9- 5	1	46,249
Carter:			
S. Davis	13- 9- 5	2	252,010
James	6- 9- 6	4	777,318
Payne	12- 9- 5	(*)	413,665
Sango	1- 9- 5	(*)	1,056,252
Gilliam	13- 9- 5	2	15,498
Continental:			
Bruner	2	(*)	124,111
Kaya	2	2	10,668
Spencer	12	4	1,444,614
Crosbie:			
Bryant	9	(*)	945,096
Empire:			
Barkus	12	1	392,635
Edmundson	3	3	950,586
Empire-Amerada:			
Bullock	8	1	35,475
Gypsy:			
Born	16	(*)	6,075
Bruner	10	4	1,831,184
F. Carter	11	8	2,178,609
Earl	16	1	63,734
Hunick	5	2	968,777
McFarland	9	(*)	118,411
N. Noble	12	4	2,082,849
Peters	10	1	491,722
Sango	1	13	2,436,362
Dan Smith	15	(*)	1,517
State	16	3	2,741,680
G. H. Strain	17	(*)	720
Independent:			
Bruner	10	3	503,974
Knappenburger	8	4	1,476,114
M. Gaines	11- 9- 5	3	1,229,292
Sullivan	10	1	233,428
Independent & Margay:			
O'Dell	4	(*)	850,217
Inter-Ocean:			
Payne	12	(*)	41,780

(Continued on next page)



"TOLEDO" AUTOMATICS— A NEW STANDARD IN PIPE CUTTERS

At last, Pipe Cutters that are automatic in operation, work rapidly, leave a straight, square-end cut without burr, and the outer edge neatly beveled.

A single hand wheel given a part turn sets the knives for cutting or the quick return after the pipe is cut off. Operated either with the regular ratchet handle furnished with "TOLEDO" threading tools or powerized with the "TOLEDO" Power Drive.

"TOLEDO" No. 40 cuts off 2" to 4" pipe. "TOLEDO" No. 80 cuts off 4½" to 8" pipe, and the cutting speed will surprise you.

THE PERFECT WORK BENCH

Owners of the "TOLEDO" No. 9 Work Bench and Chain Vise (illustrated below), for handling all sizes of pipe up to 12", tell us it is the finest work bench they have ever used. Rigid, does not need to be bolted to the floor. So strong it is practically indestructible yet strictly portable. It is the ideal Work Bench and Vise wherever large pipe is handled.

Every oil well operator will appreciate the "TOLEDO" No. 9 Work Bench. A post card brings complete information.

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THE TOLEDO PIPE THREADING MACHINE CO. TOLEDO, OHIO
NEW YORK OFFICE, 72 LAFAYETTE ST.

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DEMONSTRATING their dependability, these Barco Valves, installed in the oil line from well to accumulator-house, have never given a bit of trouble. Dirt, water, and exposure have not interfered with the perfect operation of these valves. Their rugged construction insures long, trouble-free life.

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BARCO
Valves and Joints

O&GJ 5-30 Gray

Company, lease—	S.	T.	R.	wells	recovery
Magnolia:					
Bryant	9			6	1,134,484
Cowden	4			2	45,054
Dixon	12			1	9,461
Edmundson	3			1	180,022
Germany	30			1	469
Gilliam	13			1	328,260
Holmsley	11			6	3,161,798
Hyde	13			1	447,729
Ingram	10			1	66,187
Lena	10			3	164,945
Moore	24			1	3,297
Seay	12			9	1,603,794
Simpson	10			4	395,599
Sparks	11			6	1,598,063
Sullivan	12			3	188,568
Mid-Continent:					
McKinley	9			7	1,039,460
Rogers	5			2	117,279
Mid-Kansas:					
Anderson	14			1	130,398
Phillips:					
Dunaway	14			1	16,460
Lamar	9			(*)	417,406
Philmack (Indept.):					
Do'b	8			(*)	112,448
Prairie:					
Bakers	24			2	54,521
Davis	13			3	1,750,684
C. Graham	3			2	417,856
O. Graham	10			4	1,279,610
Stidham	11			9	3,085,192
Prairie & Whitney:					
Harjo	14			1	4,753
Roxana:					
Anderson	15			(*)	252
Bayless	17			1	7,722
Hearn	13			1	43,391
Spencer	12			2	1,058,950
Strain	17			(*)	40,745
Shaffer:					
Clark	1			3	329,374
McKay	36	10	5	1	126,454
Sinclair:					
Foreman "B"	19	9	5	1	8,603
Foreman "C"	18			1	55,294
Hollins, A.	12			1	283,901
Sango	2			4	1,714,236
Skelly-Atlantic:					
Lottie	6			2	91,548
Cherry	6	9	6	4	732,331
Skelly:					
Carl	1	9	5	4	468,806
Spencer	12			1	1,044,295
Sheppard	6	9	6	4	240,441
Slick:					
Campbell	6			5	445,556
James	6			2	61,543
Superior:					
Ingram	1	9	5	1	178,430
Walker	2			3	902,356
Texas:					
Anderson	2	9	5	8	305,884
Brown	10			8	732,711
James	6	9	6	2	69,014
Roger	5			5	2,617,157
Wilmont	10			6	720,711
Tidal:					
Walker	35	10	5	3	347,095
Watkins	9	9	5	7	1,927,873
Twin State:					
Barker	12			2	461,091
Hearn	2			4	1,237,238
Total Earlsboro				257	75,593,183

*Dry and abandoned. †Not producing.

LITTLE RIVER

Total Recovery of Leases to March 1, 1929

Company, lease—	S.	T.	R.	No. prod. wells	Total recovery
Amerada:					
Nitey	2	7	6	3	894,756
Amerada et al:					
Fore	35	8	6	2	351,341
Barnsdall:					
Catcha	23	7	6	2	220,837
Hotulke	22	7	6	2	123,775
Walker	4	7	6	1	74,590
Blackwell:					
Baker (Bennett)	11	7	6	4	376,528
Nitey	35	8	6	5	1,391,769
Talley	14	7	6	4	208,108
Bryan-Emery:					
Carter (Walker)	4	7	6	1	1,787
Carter:					
Catcha	23	7	6	3	45,971
Cudjo	23	7	6	2	39,701
Fish	36	8	6	4	495,219
C. Harjo	11	8	6	3	826,733
M. Harjo	13	8	6	4	298,241
R. Jackson	11	7	6	4	582,217
Larney	24	7	6	4	426,492
Lena	10	7	6	1	229,987
Moore	11	7	6	2	197,507
Tewee	14	7	6	6	614,963
Thomas	11	7	6	1	65,387
Wilson	12	7	6	1	148,615
Champlin:					
Tewee	14	7	6	2	327,969
Continental:					
Cosar	36	8	6	7	749,017
M. Cosar	25	8	6	1	162,944
Milsey	11	7	6	2	247,783
Empire:					
Charty	24	7	6	1	32,427
Coker	13	7	6	2	122,606
Sandlin	3	7	6	1	1,522
Gypsy-Margay:					
Brown	33	8	6	1	203,068
Gypsy:					
C. Brown	33	8	6	2	97,192
Campbell	33	8	6	2	150,427
Canard	23	7	6	2	180,037
M. Cosar	25	8	6	(*)	8,574
W. Cosar	33	8	6	2	68,850
Catcha	23	7	6	7	420,484
Denmark	11	7	6	4	456,157
Holhoke	14	7	6	10	841,154
Nunbee	1	7	6	1	15,264
Patty	35	8	6	4	500,777
Payne	5	7	7	1	1,317
Renton	11	7	6	3	425,207
M. Wadsworth	1	7	6	(*)	1,72:
Independent:					
Davis, L.	2	7	6	4	158,05:
Davis, R.	13	7	6	4	816,520
Tewee	14	7	6	6	518,490
Williams	15	7	6	2	149,497
Independent et al:					
Harris	23	7	6	5	645,706
I. T. I. O.:					
Campbell	1	7	6	1	71,739
Dungan	25	8	6	3	1,009,243
M. A. House	1	7	6	1	205,435
W. E. House "A"	1	7	6	1	756,157
House "B"	2	7	6	4	757,460
Hull	26	8	6	3	474,532
Jackson	1	7	6	3	889,082
McCulla	1	7	6	3	340,989
Nitey	2	7	6	6	730,882
Phoebe "A"	36	8	6	2	230,867
Phoebe "B"	36	8	6	3	173,350
E. M. Reed	1	7	6	1	108,485
Sakelche	1	7	6	3	403,277
Marland-Shaffer:					
Harrison	4	7	6	1	21,945
Magnolia:					
Cruse	2	7	6	4	369,984
Denby	11	7	6	4	201,708
Dixon	31	8	6	1	2,622
Harjo "A"	14	7	6	2	121,156
Harjo "B"	14	7	6	2	108,834
Pattey	35	8	6	4	237,684
Reed	22	7	6	3	213,524
E. Reed	31	8	7	1	4,260
McCullough:					
Harrison	4	7	7	1	5,011
Mid-Continent:					
Bruner	11	7	6	4	327,908
Eleck	23	7	6	1	71,300
Smith	5	7	7	3	461,841
Wadsworth	36	8	6	7	549,850
Pine, W. B.:					
Harjoche	26	8	6	7	509,516
Pine & Phillips:					
Patty	35	8	6	1	261,814
Prairie:					
Chilcoat	25	8	6	3	295,232
Dungan	35	8	6	1	78,274
Gibson	14	7	6	5	454,029
Harris	14	7	6	4	309,639
House	2	7	6	4	655,349
Johnson	24	7	6	1	37,350
Lusty	5	7	7	2	4,028
Moppins	24	7	6	2	153,676
Talley	14	7	6	4	328,586
Prairie & Amerada:					
Sunny	14	7	6	7	1,092,354
Pure:					
Brinson	24	7	6	2	126,228
Catcha	23	7	6	10	781,913
Harjoche	11	7	6	4	561,739
Hollins	11	7	6	1	31,997
Reiter-Foster:					
Bunyard	14	7	6	4	519,132
Roxana:					
Ceasar	11	7	6	1	30,290
Glass	26	7	6	1	80
Hotulke	23	7	6	4	244,974
Jefferies	32	8	7	2	1,182
Johnson	13	7	6	4	511,755
Smith	1	7	6	(*)	3,038
Shaffer:					
Narcome	36	8	6	2	56,216
Skelly:					
Carl	14	7	6	2	320,458
Sinclair:					
Cosar	36	8	6	3	716,416
Haney, E	12	7	6	1	19,273
Pompey	24	7	6	1	24,553
Tewee	14	7	6	2	261,459
Slick, T. B.:					
Chilcoat	9	7	7	(*)	1,217
Reed	13	7	6	2	213,181
Williams	15	7	6	2	176,821
Woods	26	7	6	1	40,539
Slick-Pine:					
Coker	1	7	6	1	64,488
Snowden-McSweeney:					
Tiger	13	7	6	3	420,709
Superior:					
Hotulke	31	8	6	1	394
Wadsworth	1	7	6	1	10,328
Texas:					
Brooks	25	8	6	1	14,072
Coker	1	7	6	3	376,048
Janes	11	7	6	5	191,716
Hotulke	23	7	6	4	322,040
Texas et al:					
Hotulke	22	7	6	1	12,566
Tidal:					
House	1	7	6	2	470,646
Jackson	1	7	6	1	32,648
Twin State:					
Lowe	25	8	6	1	33,716
Wigdon-Long:					
Jefferson	31	7	6	1	2,993
Total Little River				325	34,712,487

MAUD

Total Recovery of Leases to March 1, 1929

Company, lease—	S.	T.	R.	No. prod. wells	Total recovery
Amerada:					
Ballard	1	3	4	1	6,846
Goslin	8	3	5	2	58,252
Gravel	1	3	4	1	560
Hallum	1	3	4	3	296,222
Amerada-Barnsdall:					
Wallace	17	3	5	1	20,601
Amerada & Hull:					
Green	20	3	5	1	46,886
Darby:					
Ketchum	19	3	5	1	17,558
Gypsy:					
Bourassa	7	3	5	2	38,116
Miller	18	3	5	4	207,984
Independent:					
Harding	18	3	5	4	240,157
Laurel:					
Billington	18	3	5	1	17,892
Magnolia:					
Billington	18	3	5	1	7,679
Phillips:					
Hudson	19	3	5	2	41,306
Wallace	7	3	5	1	5,523
Prairie:					
Campbell	18	3	5	4	183,603
Pure:					
Lindley	18	3	5	5	295,147

(Continued on Page 123)

WILDCAT OPERATIONS IN KANSAS

(Descriptions are East unless otherwise marked)

(Continued from Page 44)

EDWARDS COUNTY

Amerada & Wilcox's No. 1 Teansil, C NW NW Sec. 32-25-19w ..... Drlg. 5,187 ft.
British American Oil Co.'s No. 1 McCarty, NE cor. NW Sec. 31-25-17w ..... Sand 4,666-70 ft; 14,000,000 ft. gas; shut down.

GEARY COUNTY

Wright et al's No. 1 Younker, NW cor. NE Sec. 17-11-5.. Shut down 2,150 ft.

GRAHAM COUNTY

Gulf Coast Oil Co.'s No. 1 Johnson, C S half Sec. 27-8-25w ..... Drlg. 3,600 ft.

HARPER COUNTY

Amerada Pet. Corp.'s No. 1 Mendiville, C E SE Sec. 24-34-6w ..... Old total depth 5,360 ft.; plugged back to 4,000 ft.; drlg. 5,178 ft.

Independent & Reserve Oil Co.'s No. 1 Moulds, C NE Sec. 7-24-1w ..... Drlg. 310 ft.

HARVEY COUNTY

Deering-Marshall's No. 1 Dick, Sec. 4-25-2w ..... Drlg. 2,345 ft.
McCulloch et al's No. 1 Prouty, NW cor. SW Sec. 3-23-1w ..... Drlg. 300 ft.
Roth & Parrent's No. 1 Brombrowsky, NW cor. Sec 26-22-1e ..... Fishing 2,355 ft.
Empire G. & F. Co.'s No. 1 Tangeman, SW cor. NE NE Sec. 19-22-1e ..... Hole full water 3,554-56 ft.; abandoned.

Mrs. Gay et al's No. 1 Grove, C NW NE NW Sec. 29-23-1w ..... Drlg. 2,550 ft.
Slick & Cornell's No. 1 Gatz, NW cor. SE Sec. 36-22-1e.. Drlg. 2,695 ft.
Hartman & Skaer's No. 1 Seaman, NW cor. NE SE Sec. 26-24-1e ..... Drlg. 3,400 ft.
Fisher & Louch et al's No. 1 Reiger, NW cor. NE Sec. 17-23-2 ..... Drlg. 3,285 ft.
Jolly & Ogg's No. 1 Randall, NE cor. NE Sec. 11-24-1w... Shut down 3,444 ft.
Patton et al's No. 1 Dunning, SE cor. SW NE Sec. 26-24-1. Drlg. 2,535 ft.
Rosenthal et al's No. 1 Ingalls, C NW SW Sec. 24-23-3w. Shut down 1,405 ft.
Jolly & Ogg's No. 1 Hupp, SE cor. NE Sec. 22-23-1w... Drlg. 2,620 ft.

JEFFERSON COUNTY

Wichita Oil Co.'s No. 1 Simpson, NW cor. SW SW Sec. 19-10-17 ..... Rigged up and shut down.

KINGMAN COUNTY

Gypsy Oil Co.'s No. 1 Kincaid, NE cor. NW, Sec. 18-29-5w ..... Drlg. 1,520 ft.

LANE COUNTY

Robinson's No. 1 Dickerson, Sec. 11-18-27w..... Shut down 2,650 ft.
Blankenship Pet. Co.'s No. 1 Schaeffer, NE cor. NE Sec. 24-16-28w ..... Spudded and shut down.

MARSHALL COUNTY

Irwin et al's No. 1 Cooper, NE NW Sec. 10-3-7e..... Drlg. 1,320 ft.
Empire O. & R. Co.'s No. 1 Scally, SW NE NE Sec. 28-19-2e ..... Drlg. 2,020 ft.

MARION COUNTY

Hobworth et al's No. 1 Skiles, SE NW NW Sec. 30-21-3e. Shut down 700 ft.
T. C. Johnson's No. 1 Doltweler, SW cor. NE NW Sec. 3-18-4e ..... Drlg. 2,450 ft.
Hartman & Skaer and White Eagle's No. 1 Kline, NE NW Sec. 28-18-3e ..... Underreaming 2,710 ft.; 6-in. csg.
Connell & Prairie's No. 1 Zirak, SE cor. SW Sec. 3-18-3e ..... Shut down 2,500 ft.
General Utilities Co.'s No. 1 Burkholder, Sec. 18-19-3e... Fishing 2,760 ft.
General Utilities Co.'s No. 1 Propp, NE cor. SE SW Sec. 8-19-4e ..... Rig.
J. E. Hauna's No. 1 Pankratz, NE cor. NE SW Sec. 13-20-3 ..... Abandoned.
A. E. Meyers' No. 1 Papp, SW cor. SW NE Sec. 10-18-2.. Shut down 2,805 ft.
Frank L. Moore's No. 1 Miller, NE cor. NE Sec. 26-19-1.. Shut down 2,780 ft.

McPHERSON COUNTY

Helmerich & Payne's No. 1 Klassen, SE NE NE Sec. 14-21-1w ..... Rig.
McPherson Oil & Gas Co.'s No. 1 Decker, C SE Sec. 11-19-2w ..... Drlg. 2,230 ft.
Helmerich & Payne's No. 1 Rosen, NE cor. SE SW Sec. 25-21-2w ..... Underreaming 2,150 ft.
McPherson Gas Co.'s No. 1 Chinberg, NW cor. Sec. 18-19-2w ..... Spudding.
McPherson O. & G. Co.'s No. 1 Rasmusson, SW cor. Sec. 8-18-3w ..... Shut down 805 ft.
Ted Washabaugh's No. 1 Vosshell, NE cor. NE Sec. 9-21-3w ..... Fishing 3,301-04 ft.; show of o's.
McPherson Gas Co.'s No. 1 Reitz, NW cor. SE SW Sec. 1-20-2w ..... Drlg. 1,850 ft.
J. H. Tatlock's No. 1 Hayer, C SW NE Sec. 32-20-1w... Drlg. 1,975 ft.
Marland Prod. Co.'s No. 1 Wilkering, C SW SW Sec. 9-21-1w ..... Total depth 3,564 ft.; abandoned.

MORRIS COUNTY

Hiatt et al's No. 1 Blythe, NW NE Sec. 35-15-5e..... Shut down 1,750 ft.

NESS COUNTY

Barnsdall Oil Co.'s No. 1 Lauk, C SW Sec. 35-18-21w.... Drlg. 4,177-82 ft.; show gas and oil and water.

OSBORNE COUNTY

Mid-Kansas' No. 1 Boyce, SE cor. NW Sec. 18-6-13w.... Spudding, shut down.
Empire O. & R. Co.'s No. 1 Crest, SE NE Sec. 30-9-14w. Underreaming 3,550 ft.
Trees Oil Co.'s No. 1 Payenter, NE cor. SE SE Sec. 22-6-15 ..... Shut down 650 ft.
S. D. Jarvis' No. 1 Jellison, SE cor. SE Sec. 13-10-15w... Drlg. 3,369 ft.

OTTAWA COUNTY

Anderson et al's No. 1 Bank, NE cor. NW Sec. 28-10-2w. Shut down 3,610 ft.

PAWNEE COUNTY

F. C. Troupe's No. 1 Lovett, CEL NE NE Sec. 31-21-16w. Shut down 1,560 ft.

PHILLIPS COUNTY

Watsonian-British American's No. 1 Wellman, C SW SW Sec. 34-2-19w ..... Drlg. 1,850 ft.

PRATT COUNTY

O'Haver & Jones' No. 1 Lunt, C SW NW Sec. 15-28-14w Drlg. 1,495 ft.
Empire O. & R. Co.'s No. 1 Henderson, SW cor. Sec. 35-25-4w ..... Drlg. 2,405 ft.

RENO COUNTY

Perry et al's No. 1 Oswald, NE cor. NE SE Sec. 30-22-5w ..... Drlg. 3,140 ft.
Milmar Oil Co.'s No. 1 Strickley, SW cor. SW Sec. 17-26-5w ..... Fishing 2,550 ft.

RICE COUNTY

Allison & Fitzwilliams' No. 1 Poland, NE cor. SW NE Sec. 36-19-8w ..... Cellar.
Higgins & Stembubbie's No. 1 Shurr, NE cor. SW Sec 21-20-10w ..... Shut down 2,110 ft.

RILEY COUNTY

Derby & Shaw's No. 1 Lindstrom, NE cor. Sec. 32-7-5e... Rig.

RUSSELL COUNTY

Allison & Fitzwilliams' No. 1 Mohenny, NW SE Sec. 5-14-12w ..... Drlg. 1,800 ft.
Phillips Pet. Co.'s No. 1 Salback, SE NW Sec. 32-12-14w ..... Drlg. 2,460 ft.
T. B. Slick's No. 1 Lellaus, SW cor. NE Sec. 36-15-13w.. Drlg. 2,875 ft.

ROOKS COUNTY

Kruger et al's No. 1 Stein, NW SE SW Sec. 12-9-16w... Shut down 50 ft.
Burford-Brim's No. 1 Toxa, Sec. 22-9-17w..... Spudded; shut down.
Prairie O. & G. Co.'s No. 1 Gick, SE cor. Sec. 22-9-19w.. Drlg. 3,315 ft.
Prairie O. & G. Co.'s No. 1 Sandberg, C SW Sec. 20-9-18w ..... Water at 3,610-60; shut down 3,676 ft.

RUSH COUNTY

Sinclair Oil & Gas Co.'s No. 1 Seur, C SW NW NW Sec. 8-18-17w ..... Drlg. 1,120 ft.

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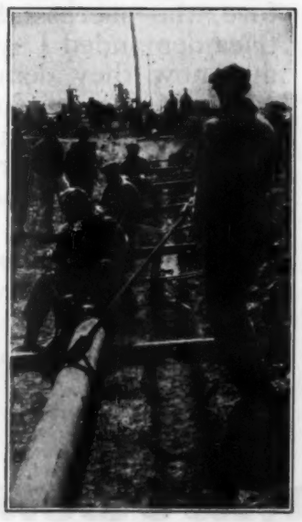

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Danciger Oil Ref. Co.'s No. 1 Swindt, SW cor. Sec. 22-17-17w ..... Drlg. 2,115 ft.
Barnsdall Oil Co.'s No. 1 Brock, C SE SE Sec. 21-17-17w ..... Drlg. 2,350 ft.
Central Commercial Oil Co.'s No. 1 Brock, SE cor. SW SW Sec. 12-17-16w ..... Shut down 50 ft.
Phillips Pet. Co.'s No. 1 Legleiter, NE cor. NW SE Sec. 10-16-18w ..... Abandoned 3,757 ft.
Danciger Oil Ref. Co.'s No. 1 Poland, NE cor. SW NE Sec. 17-19-17w ..... Drlg. 2,885 ft.
Wilcox Oil & Gas Co.'s No. 1 Schwartzkopf, NE cor. NW SW Sec. 27-17-17w ..... Drlg. 3,235 ft.
Wilcox O. & G. Co.'s No. 1 Woodward, NE cor. NE Sec. 35-27-17w ..... Drlg. 3,005 ft.

SALINE COUNTY

Dixie Oil Co.'s No. 1 Muir, C SW SE Sec. 6-15-2w..... Drlg. 1,900 ft.
Kinney-Coastal Co.'s No. 1 Hughes, NE cor. Sec. 20-13-4w. Shut down 50 ft.
M. Estey et al's No. 1 Peterson, C NE Sec. 6-16-5w..... Spudded and shut down.
Boyle et al's No. 1 Miller, SW cor. SE Sec. 21-16-1w... Drlg. 2,700 ft.
Kenney Coastal Oil Co.'s No. 1 Beal, C NW Sec. 23-14-5w ..... Underreaming 8-in. csg. 3,128 ft.

SEDGWICK COUNTY

Johnson & Marshall's No. 1 Roy, NE cor. SE SW Sec. 23-29-1w ..... Rig.
Larlo O. & G. Co.'s No. 1 Leachorff, NE cor. SW Sec. 27-29-1w ..... Rig.
Kyle et al's No. 1 Pinney, SW NW SE Sec. 29-28-1w.... Rig.
Simmons & Canary's No. 1 Scott, NE NW NE Sec. 22-26-1e ..... Rig.
T. B. Slick's No. 1 Rosenhagen, SW SE NE Sec. 33-27-4w ..... Drlg. 3,165 ft.
Hammond & Stout's No. 1 Roeder, SW NW Sec. 23-27-2w ..... Shut down 900 ft.
Twist et al's No. 1 Armstrong, NE NW Sec. 28-26-1e... Rig; spud; shut down.
Shawver et al's No. 1 Scott, SE cor. SW SW Sec 10-28-1e ..... Drlg. 1,530 ft.
Barnett O. & G. Co.'s No. 1 Davidson, NW cor. NW SW Sec. 27-26-1e ..... Drlg. 1,335 ft.
Lewis et al's No. 1 Taylor, NW cor. NE Sec. 23-27-2... Water 3,306-36 ft.; abandoned.
Kyser et al's No. 1 Stroot, SW cor. NW Sec. 8-26-2w.. Drlg. 4,093 ft.
Larlo & Blair's No. 1 Tjaden, C NE SE Sec. 22-29-2w... Hole full water 3,970-75 ft.; abandoned.
R. Magiason et al's No. 1 Buckles, NW cor. SE Sec. 3-28-1w ..... Shut down 350 ft.
Magnolia Pet. Co.'s No. 1 Wise, NW cor. NW Sec. 36-28-2w ..... Underreaming 6-in. csg. 3,410 ft.
Blankenship et al's No. 1 Tuttle, SW cor. NW Sec. 1-27-1 ..... Drlg. 3,050 ft.
Washabaugh et al's No. 1 Harrison, NW cor. NE NE Sec. 3-26-2w ..... Shut down 350 ft.
Morgan & Tilley's No. 1 Fitzgerald, NW cor. NE Sec. 5-26-1w ..... Abandoned 800 ft.
Twist et al's No. 1 Joseph, CNL SW SE Sec. 4-25-1w.... Shut down 1,875 ft.
Miller Wentz' No. 1 Shaffer, NE cor. NE Sec. 9-27-2w... Shut down 2,200 ft.; 10-in. csg. collapsed.
Kroder et al's No. 1 Harden, SW cor. NW SW Sec. 20-26-1e ..... Shut down 1,100 ft.
Morgan et al's No. 1 Corn, SW cor. NE Sec. 28-26-1w.... Drlg. 3,485 ft.
Shell Pet. Corp.'s No. 1 Lygrisse, SE cor. NE Sec. 15 26-2e ..... Simpson 3,164-73 ft.; swabbing 860 bbls. to 1,900 bbls. a day; completed.
Washabaugh et al's No. 1 Harrison, NW cor. NE NE Sec. 3-26-2w ..... Shut down 350 ft.
Sullivan et al's No. 1 Shelly, NW cor. NE SE Sec. 32-29-2e ..... Shut down 2,990 ft.
Hartman & Skaer et al's No. 1 Hutchinson, SE cor. SE SW Sec. 23-28-3w ..... Drlg. 3,692-3,725 ft.; shut down, dry.
J. H. Tatlock's No. 1 Cook, SW cor. SW Sec. 25-28-2.. Water 3,289-99 ft.; abandoned.
Producers Oil Co.'s No. 1 Jones, SW cor. NE SE Sec. 31-26-2 ..... Fishing 2,775 ft.
LaFont et al's No. 1 Carlton, C SE SE SW Sec. 24-28-1e. Drlg. 1,200 ft.
Frank Wahn's No. 1 Wilson, C NE NW SE Sec. 9-26-1w. Rig and tools.
Patten & Wentz' No. 1 Swanson, NW cor. NE Sec. 6-26-2e. Hole full oil 3,005-10 ft.; 984 bbls. in 12 hrs.; show water; completed.
Connell & Slick's No. 1 Mohannah, C NE SE SE Sec. 3-25-1w ..... Drlg. 2,970 ft.
Jones & Kirk's No. 1 Sheppard, SE cor. NE Sec. 4-25-1e. Hole full water 3,494-3,500 ft.; dry and abandoned.

SHERMAN COUNTY

A. L. Henson et al's No. 1 Murry, NE cor. SE NW Sec. 22-7-40w ..... Shut down 3,035 ft.

STEVENS COUNTY

Trees Oil Co.'s No. 1 Thompson, C NE SW Sec. 3-35-38w. Shut down 500 ft.
W. Sidwell et al's No. 1 Kelly, SW cor. NE Sec. 16 34-38w ..... Shut down 1,320 ft.

SMITH COUNTY

Mid-Kansas Oil & Gas Co.'s No. 1 Unknown, NE cor. NE Sec. 4-2-13w ..... Drlg. 3,730 ft.

SUMNER COUNTY

Gypsy & Blankenship's No. 1 Robeck, C SW SW Sec. 27-34-4w ..... Drlg. 1,890 ft.
Davidson et al's No. 1 Strickland, SW cor. SE Sec. 12-35-1w ..... Rig.

TREGO COUNTY

Central Commercial Oil Co.'s No. 1 Ellis, NE cor. SW NE Sec. 20-13-21w ..... Hole full oil 3,960-72 ft.

WASHINGTON COUNTY

McCool & Vincent's No. 1 Linn, NW cor. NE Sec. 27-4-3. Rig.

WALLACE COUNTY

Morton & Entyre's No. 1 Parker, SE cor. NW SW Sec. 20-13-41w ..... Rig.

WILDCAT OPERATIONS IN OKLAHOMA

(Descriptions are East and North unless marked otherwise)

(Continued from Page 43)

HUGHES COUNTY

Whitney et al's No. 1 Moore, SE SW Sec. 17-5-9..... Drlg. 3,910 ft.
McGee Co.'s No. 1 fee, SE cor. Sec. 25-8-11e..... Drlg. 585 ft.
The Texas Company's No. 1 Bryan, SE NE SW Sec. 9-6-8e ..... Drlg. 2,100 ft.

JACKSON COUNTY

Altus Oil Co.'s No. 1 Northington, NE cor. NE Sec. 4-1-20w ..... Shut down 2,020 ft.

KINGFISHER COUNTY

McKenna & Crawford's No. 1 Sturgeon, NE cor. SW Sec. 27-16-6w ..... Shut down 4,895 ft.

KIOWA COUNTY

S. H. Christian's No. 1 Stone, SE cor. Sec. 18-7-18w.... Rig on ground.
C. B. Cloyes' No. 1 Brazill, SW cor. NE Sec. 34-7-17w... Plugging back to 918 ft.; shot 908-18 ft.; cleaning out.
Merrick Oil Co.'s No. 1 Kelly, NW cor. SE Sec. 20-7-17w. Shut down 1,035 ft.
McWharter and others' No. 1 Sherwood, CWL NW NE Sec. 2-5-17w ..... Shut down 570 ft.

LATTIMER COUNTY

Limestone O. & G. Co.'s No. 1 Shaw, NW cor. NE NW Sec. 23-5-18e ..... Rig on ground.
Limestone Oil & Gas Co.'s No. 1 McMurray, SW cor. SW Sec. 15-5-18 ..... Drlg. 3,570 ft.

LINCOLN COUNTY

Phillips Pet. Co.'s No. 1 Stephens, SE cor. NW Sec. 29-12-3 ..... Rig.

Morgan & Flynn's No. 1 Finlay, SW cor. SW Sec. 19-16-6 ..... Drlg. 1,315 ft.

LOGAN COUNTY

Haley & Smith's No. 1 Guier, SE cor. SW Sec. 33-18-3w.. Cleaning out 5-in. csg. 3,970 ft.

McCLAIN COUNTY

Tidal Oil Co.'s No. 1 Davis, C SE SE Sec. 31-5-2e..... Water 4,284-90 ft.; abandoned.

McINTOSH COUNTY

Spring Valley Oil Co.'s No. 1 Carr, SE cor. NE NW Sec. 16-10-13e ..... Shut down 250 ft.
Patterson and others' No. 1 Smith, SW cor. NW SE Sec. 32-9-16 ..... Drlg. 5,507 ft.
Wolfe and others' No. 1 Unknown, NW cor. SE Sec. 15-12-18 ..... Rig on ground.

MAJOR COUNTY

Randau & Mooney's No. 1 Parker, SE cor. NE NW Sec. 4-23-16w ..... Show oil 1,235-40 ft.; shut down.
Earl and others' No. 1 Turner, C NE NE Sec. 23-20-14w. Rig.
Wilson and others' No. 1 Unknown, NE cor. NE Sec. 4-23-16w ..... Shut down 510 ft.

MUSKOGEE COUNTY

Cooper-Badget's No. 1 Young, NW NE NE Sec. 7-12-20e. Shut down 50 ft.
Tulkogee Oil Co.'s No. 1 Thompson, NW NE Sec. 31-15-20e ..... Machine.
Slusher's No. 1 Barnes, NE cor. Sec. 22-13-19e..... Machine.
J. L. Slusher's No. 1 Nave, NE cor. SW NW Sec. 20-15-20 ..... Shut down 775 ft.

OKFUSKEE COUNTY

Superior and others' No. 1 Carolina, SE cor. Sec. 6-11-7e ..... Location.
T. B. Slick, Inc.'s, No. 1 Berry, SE cor. NE SE Sec. 21-11-7 ..... Water 4,718-23 ft.; hole full water, abandoned.
Prairie O. & G. Co.'s No. 1 Palmer, NW cor. NW NE Sec. 2-11-9 ..... Drlg. 3,840 ft.

OKLAHOMA COUNTY

Mid-Kansas' No. 1 Trosper, NE NW Sec. 19-12-1w..... Drlg. 3,300 ft.
Slick & Bailey's No. 1 Koester, C SE NE Sec. 18-13-3w.. Shut down 5,130 ft.
Cromwell & Franklin's No. 1 Thompson, SW cor. NE NE Sec. 15-12-3w ..... Granite 7,167-80 ft.; abandoned.
Hall & Briscoe's No. 1 Holmes, NE cor. SW SE Sec. 10-11-3w ..... Shut down 4,750 ft.

PITTSBURG COUNTY

Kerr & Koy's No. 1 Hall, C NW NW Sec. 32-4-12..... Shut down 1,800 ft.

PONTOTOC COUNTY

Amerada Pet.'s No. 1 Gray, NE SW Sec. 25-5-4e..... Abandoned.

POTTAWATOMIE COUNTY

Cal-Cul Oil Co.'s No. 1 McKnight, NW cor. NE NW Sec. 9-8-3 ..... Location.
Helmerich & Payne's No. 1 Henck, NW cor. Sec. 23-6-4.. Rig on ground.

ROGER MILLS COUNTY

Bucy & Stone's No. 1 William, C SW Sec. 23-12-24w..... Location.
L. C. Hivick's No. 1 Davis, C NW NE Sec. 4-11-26w.... Shut down 725 ft.

SEMINOLE COUNTY

Indian Territory Illuminating Oil Co.'s No. 1 Peterson, SE SW NW Sec. 24-7-5e ..... Water 4,473-79 ft.; abandoned.
Indian Territory Illuminating Oil Co.'s No. 1 Factor, SW NE SE Sec. 3-5-7e ..... Drlg. 2,944 ft.
Continental Oil Co.'s No. 1 Proctor, SE cor. NE NE Sec. 5-8-8e ..... Rigging up standard tools 3,245 ft.
McCulloch Oil Co.'s No. 1 McGilbray, SW cor. SW NE Sec. 4-8-8 ..... Hole full water 4,263-4,313 ft.; fishing.
McCulloch Oil Co.'s No. 1 Powell, NW cor. NW Sec. 11-6-5 ..... Drlg. 3,210 ft.
Magnolia Pet. Co.'s No. 1 Harjo, NE cor. SE Sec. 34-8-7.. Drlg. 4,600 ft.
Prairie O. & G. Co. and others' No. 1 Davis, NE cor. NE Sec. 26-6-6 ..... Total depth 4,672 ft.; hole full water 4,303-57 ft.; fishing.

SEQUOYAH COUNTY

Hunt and others' No. 1 Unknown, SE cor. NW SW Sec. 12-12-23 ..... Shut down 1,105 ft.
Buffington and others' No. 1 Melcher, C SW NW Sec. 31-12-24 ..... Shut down 3,000 ft.

WOODS COUNTY

E. K. Miller's No. 1 Copenhavers, NW cor. NW Sec. 18-24-13w ..... Rigged up and shut down.
Gypsy-Prairie and others' No. 1 Thompson, SE cor. SW Sec. 10-25-15w ..... Drlg. 5,095 ft.
Sinclair Oil & Gas Co.'s No. 1 Showalter, C SW SW Sec. 33-27-16w ..... Drlg. 2,243 ft.

WOODWARD COUNTY

Farrond et al's No. 1 Unknown, SE cor. SW SE Sec. 22-23-17w ..... Drlg. 1,160 ft.
Prairie Oil & Gas Co. and others' No. 1 James, NE cor. NW Sec. 23-23-17w ..... Drlg. 3,744 ft.
Billy's Oil Co.'s No. 1 Watt, C SE Sec. 9-23-20w..... Underreaming 8-in. csg. 3,550 ft.
Burgoyne Brothers' No. 1 Merkins, SW cor. SE NE Sec. 15-21-19w ..... Shut down 1,910 ft.
Wilson and others' No. 1 Unknown, NE cor. SW Sec. 4-23-16w ..... Shut down 510 ft.

SOUTHERN OKLAHOMA

ATOKA COUNTY

Wapanucka Oil Co.'s No. 1 Banks, CWL SE SE Sec. 28-2s-9 ..... Shut down 1,530 ft.

BRYAN COUNTY

Yale Oil Syndicate's No. 1 Craige, C NW NE Sec. 36-9s-9e ..... Shut down 1,390 ft.

CARTER COUNTY

L. J. Woodruff's No. 1 Zellnear, NE cor. NW SE Sec. 34-4s-1 ..... Machine.
Avon-Dickey's No. 1 Anderson, NE cor. SE NE SE Sec. 22-4s-2 ..... Shut down 420 ft.

CHOCTAW COUNTY

Choctaw Petroleum Co.'s No. 1 Wilson, SW cor. SW Sec. 15-6-9 ..... Shut down 1,346 ft.

COTTON COUNTY

Derden & Pruitt's No. 1 Musgrove, NW SE Sec. 21-2-11w ..... Drlg. 50 ft.
Birdwell et al's No. 1 Means, SE SW SW Sec. 24-1-11w.. Shut down 1,626 ft.
Kirbow and others' No. 1 Brown, NE SW Sec. 35-3-12w.. Shut down 1,170 ft.
Perkins & Callum's No. 1 Tucker, NW NE Sec. 11-3-10w ..... Abandoned 2,513 ft.
Pewlin Pet. Co.'s No. 1 King, SW SE Sec. 23-3-9w..... Drlg. 2,000 ft.
Amerada Pet. Corp.'s No. 1 Dulaney, SE cor. NW NW Sec. 31-4-9w ..... Drlg. 1,953 ft.
White and others' No. 1 Woodruff, NW NE SE Sec. 18-2-11w ..... Abandoned 2,500 ft.

JEFFERSON COUNTY

Danciger et al's No. 1 Dilley, SE NW (O.D.D.) Sec. 11-5-7w ..... Rig.
Wirt Franklin Pet.'s No. 1 Sanders, SE NW Sec. 10-4-8w. Rig.
Alter and others' No. 1 Johnson, SW cor. NW Sec. 14-4-7. Spudded and shut down 350 ft.
Pierce & Brown's No. 1 School Land, SE NE NW Sec. 16-5-8w ..... Rig.

JOHNSTON COUNTY

Humble O. & R. Co.'s No. 1 Colbert, Sec. 6-4s-4e, SE SW. Abandoned 1,500 ft.
Smith & Knisely's No. 1 Lane, E half Sec. 29-1-7..... Shut down 1,900 ft.
Bush Creek Oil Co.'s No. 1 Kirby, SE cor. NE NW Sec. 9-4-7 ..... Shut down for casing 405 ft.

MARSHALL COUNTY

Neif and others' No. 1 Strothers, C SW NE NE..... Drlg. 850 ft.

MURRAY COUNTY

Bison Oil Co.'s No. 1 Labor, NW cor. Sec. 17-1-2e..... 500,000 ft. gas and show of oil 2,185-2,228 ft.; shut down 2,270 ft.

STEPHENS COUNTY

Leath et al's No. 1 Handley, SE SW Sec. 24-2-9w ..... Location.
Wirt Franklin Pet.'s No. 1 Spain, SW SE NW Sec. 9-2-5w ..... Rig.

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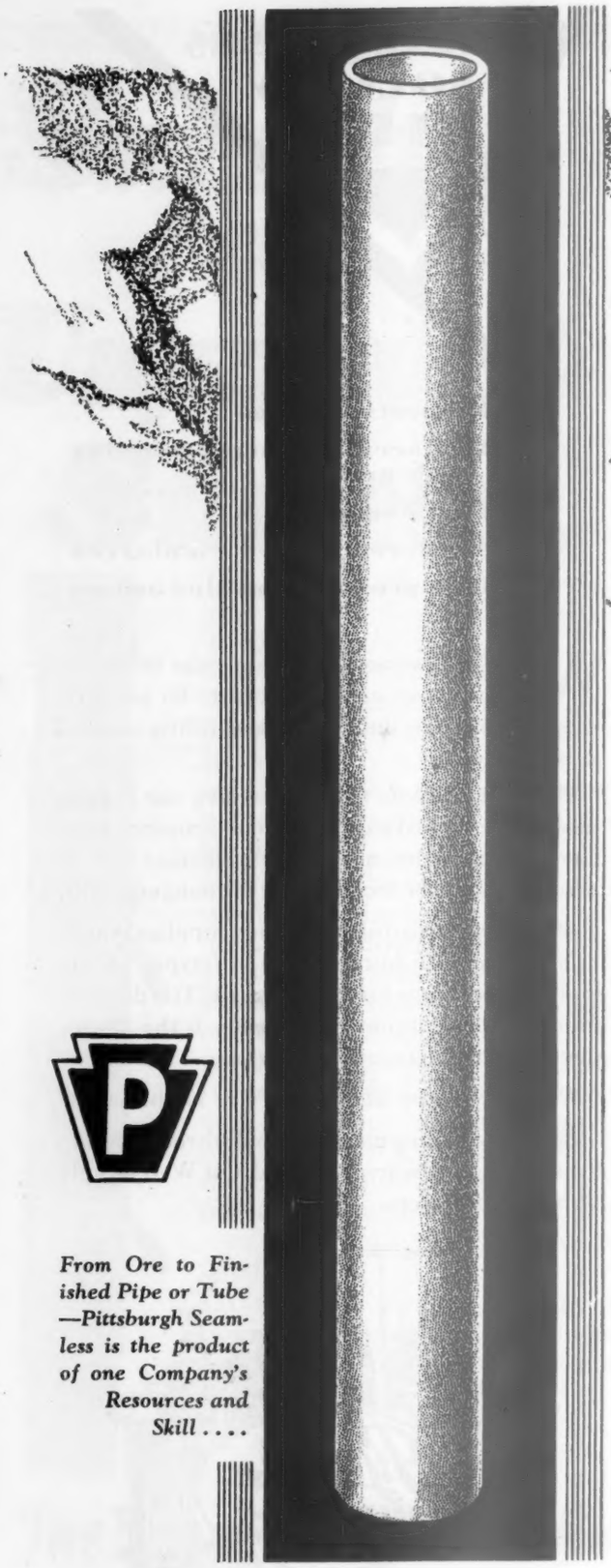

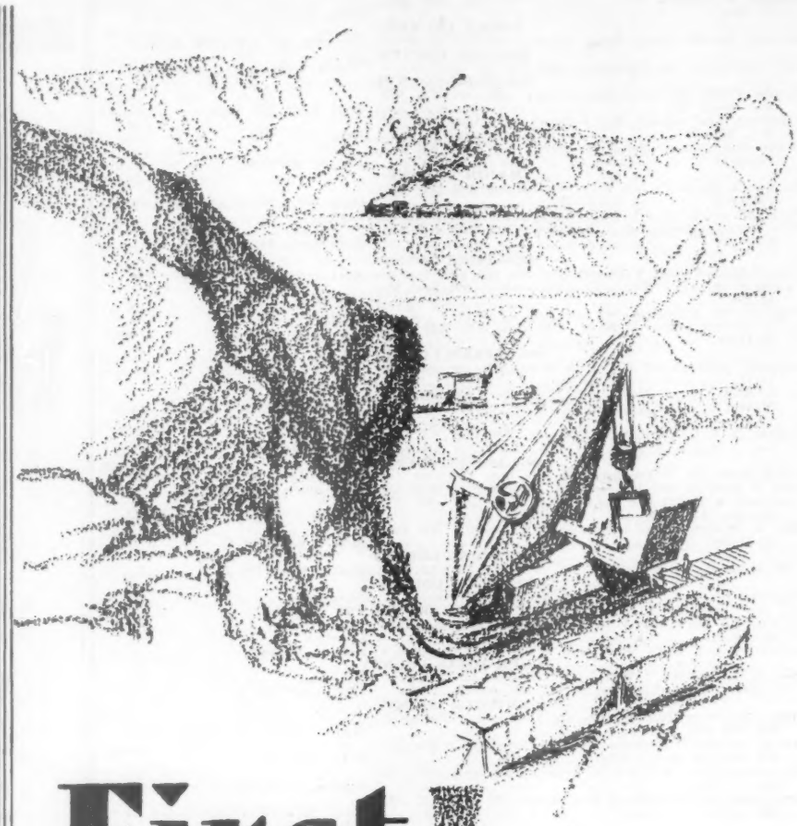

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2904

Heydrick Drlg. Co.'s No. 1 Thompson, CWL SE NE Sec. 1-1-8w ..... Drlg. 1,345 ft.
Haynes et al's No. 1 Woolsey, SE cor. SW NE Sec. 4-35-6w ..... Location.
Ellis Drilling Co.'s No. 1 Yates, SW NE Sec. 4-3-7w.... Shut down 50 ft.
Smythe and others' No. 1 Shaw, NE cor. NE Sec. 27-2-8w ..... Rig.

TILLMAN COUNTY

Long & Taylor's No. 1 Grooms, SE NW Sec. 10-1-17w... Shut down 726 ft.
Cochran & Ridgway's No. 1 Barnes, C NW NE..... Cellar.
Burt Lambert and others' No. 1 Zivlig, C NW Sec. 25-1-18w ..... Drlg. 2,771 ft.
Landfair and others' No. 1 Smith, SE SW SE Sec. 6-2s-15w ..... Shut down 2,535 ft.
Allen & Treadwell's No. 1 Howell, NW cor. SE Sec. 13-1-17w ..... Shut down 785 ft.

OKLAHOMA PANHANDLE

Magnolia Pet. Co.'s No. 1 School, C SE NE Sec. 22-5-5... Drlg. 3,316 ft.
Skaer's No. 1 Hitch, NW cor. Sec. 25-1-15e..... Drlg. 100 ft.
Three Way Oil Co.'s No. 1 Cane, SW NW Sec. 11-1-18e... Shut down 3,350 ft.

WILDCAT OPERATIONS IN NEBRASKA

(Descriptions are East unless otherwise marked)

CHASE COUNTY

Northwestern's No. 1 Ingold, C NE Sec. 24-6n-38w ..... Shut down 3,612 ft.

FRANKLIN COUNTY

U. R. Drlg. Co.'s No. 1 Brunkle (twin well), C NW SW NE Sec. 2-3n-13w ..... Rig.

FURNAS COUNTY

Southwestern Pet. Corp. of Nebraska's No. 1 Montague, SE SW SW Sec. 28-1n-22w ..... Shut down 1,480 ft.

WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 65)

Ryan Oil Co.'s No. 3 Black, 990 ft. from S line, 330 ft. from E line NE, Sec. 111, Blk. 4, L&G.N.R.R. Sur... Rig.
Ryan Oil Co.'s No. 4 Block, 990 ft. from N line and 330 ft. from E line NE, Sec. 111, Blk. 4, L.&G.N. Sur. ... Location.
Spartan Oil Co.'s No. 1 S. Bednorz, NW cor. E½ NW, Sec. 202, Blk. 3, I.&G.N. Sur. ..... T.D. 3,393 ft; P.B. 3,281 ft; shot 30 qts. 3,274-81 ft; no results; to plug back.
Skelly Oil Co.'s No. 13 Schafer, 330 ft. N and E of SW cor. Sec. 88, Blk. 4, I.&G.N. Sur. ..... Drlg. 2,570 ft.
Skelly Oil Co.'s No. 14 Schafer, 330 ft. S and W of NE cor. Sec. 68, Blk. 4, I.&G.N.R.R. Sur. ..... Set 8-in. csg. at 2,246 ft.
Skelly Oil Co.'s No. 15 Shafer, 330 ft. from S line and 330 ft. from W line NE, Sec. 198, Blk. 3, I.&G.N. ... Location.
The Texas Corp.'s No. 1 Quinn, 330 ft. from S line and 330 ft. from W line SE, Sec. 7, Blk. 9, I.&G.N. R.R. Sur. ..... Run. 6-in. at 2,904 ft.
Timmis et als' No. 2 Garner, 330 ft. from N line and 330 ft. from E line SW SW, Sec. 113, Blk. 4, I.&G.N. .... Location.
Travis et als' No. 1 D. A. Harrel, C NE NE, Sec. 162, Blk. 7, I.&G.N. Sur. ..... S.D. 3,530 ft; 250,000 ft. gas from 3,520-30 ft.
Ware et als' No. 1 Ware, 990 ft. S and 400 ft. E NW cor. Sec. 18, Blk. 3, A.B.&M. Sur. ..... Drlg. 4,725 ft.

CASTRO COUNTY

Colorado O. & R. Co.'s No. 1 M. Siemmons, SW cor. Sec. 73, Blk. M-17, B.S.&F. Sur. ..... Rig blown down.
Mystery Oil Co.'s No. 1 J. I. Crum, SE cor. NE, Sec. 333, Blk. M-6, S.K.&K. Sur. ..... S.D. 510 ft. for csg.

CHILDRESS COUNTY

C. L. Sloane et als' No. 1 B. P. Smith, Sur. 49, F. P. Knott lands ..... S.D. 4,340 ft.

COCHRAN COUNTY

Marland Prod. Co.'s No. 1 Slaughter-A, 330 ft. from W and 430 ft. from S lines, League 130, Carson County School land ..... Fish. 1,845 ft.

COTTLE COUNTY

Explin. Co.'s No. 1 Richards ..... S.D. 3,535 ft. for csg.
Explin. Co.'s No. 4 Matador Land & Cattle Co., C, Sec. 46, J. H. Stephens Sur. ..... S.D. 3,227 ft.
Sun Oil Co.'s No. 1 T. B. Yarborough, 485 ft. S and 2,460 ft. E NW cor. Sec. 551, Blk. H, W.&N.W. Sur. ... U.R. 5-in. csg. at 4,000 ft.

DONLEY COUNTY

Beaudoin et als' No. 1 Ball, 1,075 ft. from N line and 985 ft. from E line, Sec. 22, Blk. E, D.&P.R.R. Sur... Rig.
Marine Oil Co.'s No. 1 Sawyer, C SW, Sec. 5, Blk. G, G.C.&S.F. Sur. ..... Drlg. 2,200 ft.

GRAY COUNTY

Anderson et als' No. 1 Heitholt, C NE SW, Sec. 152, Blk. 3, I.&G.N. Sur. ..... Drlg. 2,800 ft; 2,000,000 ft. gas from 2,685-2,800 ft.
Amagray Oil Co.'s No 2 Chapman, 330 ft. S and W NE cor. W½ SW, Sec. 9, Blk. 26, H.&G.N. Sur. ..... Drlg. 1,905 ft.
B. S. Arnold's No. 1 J. E. Mingale, C E 160 ac., Sec. 212, Blk. B-2, H.&G.N. Sur. ..... S.D. 2,508 ft.
Barnsdall Oil Corp.'s No. 1 M. B. Davis, NW cor. W½, Sec. 9 Blk. 1, A.C.H.&B. Sur. ..... S.O. 2,820 ft; show gas 2,836 ft; S.O. 2,980 ft; T.D. 3,010 ft; plugged back to 2,883 ft. to shoot; C.O.
British American Oil Co.'s No. 1 Purviance, 330 ft. each way from NW E 160 ac., Sec. 61, Blk. B-2, H.&G.N.. Drlg. 160 ft.
Camel Oil Co.'s No. 1 Harrah-B, 330 ft. each way from NW cor. NE, Sec 150, Blk. 3, I.&G.N. Sur. ..... Show oil and gas 3,125 ft; T.D. 3,225 ft; swbd. 190 bbls. in 24 hrs. from lime at 3,154-3,225 ft.
Champion Ref. Co. and Danciger's No. 1 Cook Faulkner, 330 ft. each way from SW cor. W 120 ac., E 200 ac., Sec. 30, Blk. B-2, H.&G.N. ..... Location.
Champlin Ref. Co.'s No. 1 McLaughlin, 330 ft. S and W of NE cor. Sec. 33, Blk. B-2, H.&G.N. Sur. ..... Drlg. 2,745 ft.
Champlin Ref. Co.'s No. 2 Jackson, 330 ft. each way from SE cor., W 100 ac., Sec. 60, Blk. B-2, H.&G.N.. Location.
Crabtree Drlg. Co.'s No. 1 B. F. Talley, SW NE, Sec. 114, Blk. M-2, B.S.&F. Sur. ..... S.D. 2,740 ft.
Cockrell-McElroy et als' No. 1 McConnell, 330 ft. each way from NE cor. W½ SW, Sec. 174, Blk. 3, I.& G.N.R.R. Sur. ..... Show gas 2,890 and 2,920 ft; T.D. 3,320 ft; to P.B. and shoot; light spray 3,140-45 ft.
Cockrell-McElroy Oil Co.'s No. 2 McConnell, 330 ft. S and E of NW cor. W½ SW, Sec. 174, Blk. 3, I.&G. N.R.R. Sur. ..... Drlg. 1,560 ft.
Constantine et als' No. 1 Dial, 330 ft. S and E of NW cor. W½ NW, Sec. 32, Blk. 25, H.&G.N. Sur. ..... S.D. 2,965 ft; encountered salt wtr.
Danciger O. & R. Co.'s No. 1 H. K. Beck, 330 ft. S and E NW cor NW, Sec. 28, Blk. B-2, H.&G.N. Sur. .... Show gas 2,190 ft; drlg. 2,730 ft.
Danciger O. & R. Co.'s No. 4 Morse, 330 ft. S and E NW cor. NW SW, Sec. 1, Blk. 26, H.&G.N. Sur. ..... Rig.
Danciger's No. 2 Shell-Shaw, 330 ft. each way from SE cor. E½ SW, Sec. 5, Blk. 1, A.C.H.&B. Sur. ..... Rigging up.
Danciger et als' No. 1 Sheridan, SE cor. Sec. 184, Blk. B-2, H.&G.N.R.R. Sur. ..... Temp. abd.
Delaney and Associates Oil Co.'s No. 8 Jackson, 990 ft. S and 330 ft. E NW cor. E½ SW, Sec. 88, Blk. B-2, H.&G.N.R.R. Sur. ..... Cellar.
Empire G. & F. Co.'s No. 1 R. M. Brown, C of SE, Sec. 238, Blk. B-2, H.&G.N. Sur. ..... Drlg. 1,010 ft.
Sines & Reiger's, formerly Eulick et als' No. 1 Mrs. J. A. Hopkins, NW cor. W 80 ac. of SW, Sec. 84, Blk. B-2, H.&T.C. Sur. ..... Fish. pipe 3,206 ft.
Gardner Bros. and Collins' No. 1 Lincoln-Saunder, 330 ft. S and W of NE cor. W½ NE, Sec. 3, Blk. 1, A. C.H.&B. Sur. ..... 5,000,000 ft. gas 2,190-2,250 ft; drlg. 2,360 ft.
Gardner Bros. & Collins' No. 2 Saunders, 350 ft. from N on center line of W 68 of W½ of E½ of J. G. Eustice Sur. ..... Location temp. abd.
Gulf Prod. Co.'s No. 7-B Bowers, 990 ft. N and 330 ft. W of SE of 160-ac. lease, Sec. 89, Blk. B-2, H.&G. N. Sur. ..... Drlg. 2,630 ft; estimated 1,500,000 ft. gas.
Gulf Prod. Co.'s No. 1 Jackson, 295 ft. N and 305 ft. E of SW cor. W½, Sec. 62, Blk. B-2, H.&G.N.R.R. Sur. ..... Show oil 2,635-40 ft; 2,000,000 ft. gas 2,565 ft; drlg. 2,710 ft.
Harrell's No. 1 McConnell, 330 ft. S and W of NE cor. E½ SE, Sec. 187, Blk. 3, I.&G.N.R.R. Sur. ..... Drlg. 3,003 ft; 3,000,000 ft. gas 2,-825-30 ft. and 2,860-2,965 ft.
Independent O. & G. Co.'s No. 1 Hottenbeck, 990 ft. each way from NE cor. NE, Sec. 176, Blk. 3, I.& G.N.R.R. Sur. ..... 5,000,000 ft. gas from 2,428-83 ft; drlg. 2,660 ft.
McConnell Oil Co.'s No. 1 McConnell, 330 ft. from N and E lines W½ NE, Sec. 65, Blk. 4, I.&G.N. Sur. ..... Location.
McLain Oil Co.'s No. 1 Back, 1,000 ft. from W line and 330 ft. from N line, NW, Sec. 24, Blk. 25, H.& G.N. Sur. ..... 1,000,000 ft. gas 2,105-10 ft. and estimated 3,000,000 ft. gas 2,202-08 ft; drlg. 2,365 ft.
McMan O. & G. Co.'s No. 1 Saunder, 330 ft. N and E of SW cor. E 80 ac. W½ of E½, J. G. Eustice Sur. ..... T.D. 2,576 ft; flowed 1,000 bbls. in 24 hrs; T.P. 2,525-70 ft; 11,000,-000 ft. gas.
Nabob Oil Co.'s No. 2 Morse, 660 ft. from W line and 330 ft. from S line SW, Sec. 67, Blk. 25, H.&G. N.R.R. Sur. ..... Spudding.
Marland Prod. Co.'s No. 3 Finley-Brown, 1,224 ft. from E line, 330 ft. from N line, Sec. 32, Blk. B-2, H.& G.N. Sur. ..... Location.
Operators Oil Co.'s No. 2 Cook-Faulkner, 903 ft. from S line and 230 ft. from W line of W 90 ac., Sec. 30, Blk. B-2, H.&G.N. Sur. ..... Location.
Oil Operators Oil Co.'s No. 3 Cook-Faulkner, 330 ft. ea. way from SE cor. W 90 ac., Sec. 30, Blk. B-2, H. &G.N. Sur. ..... Location.
Operators Oil Co.'s No. 7 Jackson, 330 ft. S and 270 ft. W NE cor. N½ NE, Sec. 88, Blk. B-2, H.&G.N. Sur.. Show gas 2,256 ft; drlg. 2,810 ft; estimated 2,000,000 ft. gas.
Phillips Pet. Co.'s No. 1 Jackson, 330 ft. each way from NE cor. NE, Sec. 58, Blk. B-2, H.&G.N.R.R. Sur.. Rig.
Phillips Pet. Co.'s No. 5 Jackson, 330 ft. S and 990 ft. E NW cor. S½ NE, Sec. 88, Blk. B-2, H.&G.N. Sur... Skidding rig 75 ft. east.
Phillips Pet. Co.'s No. 2 Palmer, 903 ft. from S line and 330 ft. from E line of E 83.4 ac., Sec. 31, Blk. B-2, H.&G.N. Sur. ..... Location.
Phillips Pet. Co.'s No. 3 Palmer, 330 ft. each way from SW cor. E 83.1 ac., Sec. 31, Blk. B-2, H.&G.N. Sur. . Location.
Panhandle Ref. Co.'s No. 1 Saunders, 330 ft. S and E NW cor. E½ NE, Sec. 3, Blk. 1, A.C.H.&B. Sur. .... 15,000,000 ft. gas 2,150-2,220 ft; setting 6-in. csg. 2,472 ft.
Panhandle Ref. Co.'s No. 2 Saunders, 330 ft. S and W NE cor. E½ NE, Sec. 3, Blk. 1, A.C.H.&B. Sur. ..... S.D. 2,381 ft.
Scott Drlg. Co. et als' No. 1 Chapman, 330 ft. N and E SW cor. S½ NE, Sec. 69, Blk. 25, H.&G.N. Sur. .. Drlg. 400 ft.
Ray Massie's No. 4 Chapman, 330 ft. each way from NW SE SW, Sec 51, Blk. 25, I.&G.N. Sur. ..... Spudding.
Shamrock Co.'s No. 3 Clayton, 150 ft. from W and 330 ft. from N line, E 277.4 ac., Sec. 50, Blk. 25, H.& G.N.R.R. Sur. ..... Spudding.
Shamrock Co.'s No. 1 Clayton-B, 730 ft. from N and 150 ft. from W line E½ of E 277.4 ac., Sec. 50, Blk. 25 ..... Spudding.
Shell Pet. Corp.'s No. 3 McConnell, 330 ft. N and W SE cor. Sec. 174, Blk. 3, I.&G.N.R.R. Sur. ..... Cellar.
St. Clair Oil Co.'s No. 1 Dial, 330 ft. S and W NE cor. SE, Sec. 10, Blk. 25, H.&G.N.R.R. Sur. ..... Cellar.
St. Clair Oil Co.'s No. 1 Rowe, Sec. 32, Blk. R ..... S.D. 3,490 ft. with H.F.W.
St. Clair Oil Co.'s No. 1 L. S. Stockton, SE cor. Sec. 35, W. R. Lee Sur. ..... Spudded and S.D.
Sun Oil Co.'s No. 1 Purviance, 330 ft. S and W NE W 80 ac., Sec. 61, Blk. B-2, H.&G.N.R.R. Sur. ..... 3,000,000 ft. gas 2,655-75 ft; drlg. 2,830 ft; 3,000,000 ft. gas from 2,815-30 ft.
The Texas Co.'s No. 6 Bowers, 270 ft. W and 330 ft. N SE cor. E½, Sec. 89, Blk. B-2, H.&G.N.R.R. Sur. .. Set 8-in. csg. at 2,765 ft.
The Texas Co.'s No. 7 Bowers, 330 ft. E and 990 ft. N SW cor. E½, Sec. 89, Blk. B-2, H.&G.N. Sur. ..... Set 8-in. csg. at 2,805 ft.
The Texas Co.'s No. 2 B. Bull, 990 ft. S and E NW, Sec. 2, Blk. B-2, H.&G.N.R.R. Sur. ..... Fish. 1,440 ft.
The Texas Co.'s No. 2 Chapman-B, 990 ft. N and E SW cor. Sec. 50, Blk. A-9, H.&G.N.R.R. Sur. ..... Drlg. 2,150 ft.
The Texas Co.'s No. 6 Chapman-A, 330 ft. N and 755 ft. E SW cor. SE, Sec. 51, Blk. 25, H.&G.N. Sur. ..... Drlg. 2,725 ft.
The Texas Corp.'s No. 4 Cook-Faulkner, 1,973 ft. from W line and 330 ft. from N line of W 160 ac., Sec. 29, Blk. B-2, H.&G.N. Sur. ..... Location.
The Texas Corp.'s No. 3 Cook-Faulkner, 1,313 ft. from W line and 330 ft. from N line of W 160 ac., Sec. 29, Blk. B-2, H.&G.N.R.R. Sur. ..... Location.
The Texas Co.'s No. 5 McLarty-A, 330 ft. S and E of NW cor. Sec. 2, Blk. 1, A.C.H.&B. Sur. ..... Show gas 2,235 ft; drlg. 2,440 ft.
The Texas Co.'s No. 2 McLarty-B, at center of J. M. Rose Sur. ..... Rig.
The Texas Co.'s No. 2 Shaw, 1,000 ft. from S and 330 ft. from W line E½, Sec. 5, Blk. 1, A.C.H.&B. Sur.. Drlg. 700 ft.
The Texas Co.'s No. 4 Williams, 330 ft. each way from NE NE NW, Sec. 6, Blk. 1, A.C.H.&B. Sur. ..... Rig on ground.
Travis et als' No. 2 Back, 330 ft. each way from NW cor. E½ SE cor. Sec. 44, Blk. 25, H.&G.N.R.R. Sur.. S.D. 2,625 ft; to erect storage; spraying 100 bbls. daily; 12,000,-000 ft. gas at 2,490 ft; T.P. 2-545-60 ft.
Wilcox-Pampa Oil Co.'s No. 7 Comb-Worley, 330 ft. N and E SW cor. SE, Sec. 60, Blk. 3, I.&G.N. Sur. ..... Spudding.
Wilcox-Pampa Oil Co.'s No. 8 Comb-Worley, 330 ft. NW of SE SE Sec. 60, Blk. 3, I.&G.N. Sur. ..... Location.

HOCKLEY COUNTY

World Oil Co.'s N. 1 Ellwood, 320 ft. from N and W lines, League 7, Wilbarger County School lands; elevation 3,363 ft.; contract depth 5,000 ft. ..... S.D. 1,455 ft.

HARTLEY COUNTY

Amarillo Oil Co.'s No. 9 Lee Bivins "A," C NW, Sec. 6, Blk. 21 ..... Drlg. 3,680 ft.

HUTCHINSON COUNTY

Amarillo Oil Co.'s No. 2 Ingerton-A, 1,650 ft. from N line, 1,071 ft. from E line, Sec. 41, H.&T.C.R.R. Sur.. Drlg. 960 ft.
Holmes et als' No. 1 Moore, 330 ft. N and E SW cor. N½ E 80 ac., SE, Sec. 125, Blk. 4, I.&G.N.R.R. Sur.. Drlg. 1,780 ft.

Holmes et als' No. 2 Quinn, 990 ft. from S line and 330 ft. from E line SW, Sec. 7, Blk. 9, I.&G.N. Sur. ..... Rigging up.
Marland Prod. Co.'s No. 1 Sanford-C, 783 ft. N and 330 ft. W SE cor. N½, Sec. 79, Blk. 46, H.&T.C.R.R. Sur. ..... U.R. 6-in. csg. 2,774 ft.
McMan O. & G. Co.'s No. 2 Sanford, 300 ft. from W line and 315 ft. from S line N 274 ac., Sec. 83, Blk. 46, H.&T.C. Sur. ..... Rig.
Oil Operators Trust Co. and Marland's No. 2 J. M. Stanford-B, Sec. 82, Blk. 46, H.&T.C. Sur. ..... S.D. 3,039 ft.
O. B. Penney's No. 2 Johnson Bros., 330 ft. from S line, 330 ft from W line W½ NE, Sec. 35, Blk. Y, A.& B. Sur. ..... Rig.
Phillips Pet. Co.'s No. 1 Johnson Bros., 330 ft. from N and W lines NW. Sec. 34, Blk. Y, A.&B. Sur. ..... Spudding.
Phillips Pet. Co.'s No. 4 Johnson-Pulaski, 330 ft. from N line and E line of W½, Mary Whitley Sur. ..... C.O. 2,850 ft; Show oil 2,825-30 and 2,843 ft.
Phillips Pet. Co.'s No 5 Johnson Bros. (Florence), 330 ft. each way from S and E line of E½, Mary Whitley Sur. ..... T.D. 2,933 ft; T.P. 2,880-2,928 ft; swbd. 20 bbls; to shoot.
Phillips' No. 1 Sanford-Glass, 660 ft. S and E of NW cor. S 80 ac. of N 160 ac. of S 320 ac., Sec. 80, Blk. 46, H.&T.C. Sur. ..... Set 10-in. csg. 1,763 ft.
Phillips Pet. Co.'s No. 6 (Florence), 330 ft. each way from S and W lines, E½ ..... Rig.

KING COUNTY

Huff Oil Co.'s No. 1 Martin, 1,320 ft. from N line and 1,320 ft. from E line, Sec. 171, Blk. F, H.&T.C. Sur... Rig.

LAMB COUNTY

Dan Freed et als' No. 1 Ellwood, CWL, Sec. 9, Blk. T. T. A. Thompson Sur. ..... Drlg. 965 ft.

LIPSCOMB COUNTY

Brown et als' No. 1 Box T Ranch, SW NE, Sec. 612, H. &T.C. Sur. ..... S.D. 3,128 ft.
Ruby Oil Co.'s No. 1 C. W. Jones, NE SW, Sec. 100, H.&T C. Sur. ..... S.D. 4,428 ft.

LUBBOCK COUNTY

Center Oil Co.'s No. 1 Bowles Ranch ..... Small show oil 1,133-40 ft; sand; fish 4,167 ft.

MOORE COUNTY

Amarillo Oil Co.'s No. 1 Read-A, C NW, Sec. 14, Blk. 13-12, D.&P. Sur. ..... Cellar.
Amarillo Oil Co.'s No. 1 Perkins-A, 330 ft. each way out of NW cor. NE, Sec. 76, Blk. 3 ..... Location.
Amarillo Oil Co.'s No. 2 Warrick, C S 160 ac., Sec. 92, Blk. 46, H.&T.C. Sur. ..... T.D. 2,910 ft; 60,000,000 ft. gas from 1,580-2,910 ft; rig burned.
Barnsdall Oil Co.'s No. 1 Harrison, 330 ft. from N line and 330 ft. from E line S½ NE, Sec. 5, Blk. M-2 ... Drlg. 2,587 ft.
Canadian Gas Co.'s No. 1 Kilgore-A, 2,716 ft. S and 2,695 ft. W NE cor. Sec. 1, Eustice Sur. ..... Drlg. 3,310 ft; 17,000,000 ft. gas at 3,235-3,310 ft.
Dana O. & G. Co.'s No. 1 Anthony, C NW, Sec. 260, Blk. 44, H.&T.C.R.R. Sur. ..... Rig.
Dana O. & G. Co.'s No. 1 Road-A, C NW, Sec. 14, Blk. B-12 ..... Location.
Fritch O. & G. Co.'s No. 1 Lee Burns, C NE 40 ac. of N 160 ac., Sec. 4, Geo. Mahan Sur. ..... Spudded and S.D.
Phillips Pet. Co.'s No. 1 Burnett, 330 ft. each way from NE cor. NE. Sec. 192, Blk. 3-T, T.&N.O. Sur... S.D. 3,582 ft; plugged back to 3,372 ft; shot 100 qts. 3,340-72 ft; no results; to complete for gas well.
Phillips Pet. Co.'s No. 3-A Sneed, Jr., 1,600 ft. S and 430 ft. W of NW cor. J. N. Proctor Sur. ..... Swbd. 30 bbls. 3,126-31 ft; T.D. 3,139 ft.
Phillips Pet. Co.'s No. 1 Taylor, 330 ft. N and E SW cor. E½ NW cor. Sec 244, Blk. 3-T, T.&N.O. Sur. ..... Drlg. 3,935 ft; 5,000,000 ft. gas from 2,825-2,935 ft.
Phillips No. 1 Wilson, 330 ft. each way out of NW cor. S½ SE, Sec. 157, Blk. 3-T ..... Building rig.
Skelly Oil Co.'s No. 8 Armstrong & Byrd, 2,920 ft. S and 3,752 ft. of NW cor. Proctor Sur. ..... Building rig.
Skelly Oil Co.'s No. 9 Armstrong & Byrd, 2,220 ft. S and 990 ft. E NW cor. Proctor Sur. ..... Building rig.

MOTLEY COUNTY

Explta. Co.'s No. 5 Matador, C, Sec. 45, Blk. J-B, C. B.&C.N.G.R.R. Sur. ..... Fish. 300 ft.
Explta. Co.'s No. 6 Matador, 330 ft. from N line and 330 ft. from E line, Sec. 132, Blk. M ..... Rig.
Matador Oil Corp.'s No. 1 Owen, C NE, Sec. 10, Blk. G. B.&B. Sur. ..... Rig.

RANDALL COUNTY

W. H. Patterson's No. 1 Palo Duro, Sec. 60, Blk. K-14 .... Run. 12-in. csg. at 610 ft.

ROBERTS COUNTY

Big Bend Oil Co. s No. 1 Ledrick, Sec. 7, Blk. 5-A ..... S.D. 5,975 ft.

WHEELER COUNTY

Anderson's No. 1 Meiners, C SW SE, Sec. 71, Blk. 17, H.&G.N.R.R. Sur. ..... Building rig.
Byrens et als' No. 1 Johnson, SW cor. NE, Sec. 88, Blk. A-5, H.&G.N. Sur. ..... Fish. csg. 2,920 ft.
Gibson Oil Co.'s No. 7 Bentley, 330 ft. N and W of SE cor. NW SE, Sec. 42, Blk. 24, H.&G.N. Sur. ..... Drlg. 2,200 ft; show gas 2,155 ft.
Gillespie et als' No. 1 McMurtrey, C NW SE, Sec. 67, Blk. 17, H.&G.N. Sur. ..... Rigging up.
Lone Star Gas Co.'s No. 1 Griswold, C NE SE, Sec. 1, Blk. 24, H.&G.N. Sur. ..... Drlg. 1,550 ft.
Lone Star Gas Co.'s No. 1 Ridenger, C SW NW, Sec. 65, Blk. 17, H.&G.N.R.R. Sur. ..... Drlg. 1,700 ft.
Magnolia Pet. Co.'s No. 1 Trostle, C S½ NW SW, Sec. 130, Blk. 23, H.&G.N.R.R. Sur. ..... Drlg. 300 ft.
L. W. Rook's No. 2-A Smock, C SW SE, Sec. 5, Blk. 24, H.&G.N. Sur. ..... Temp. abd.
The Texas Co.'s No. 2 Gordon, 660 ft. N and E of SW cor. NW, Sec. 91, Blk. 17, H.&G.N. Sur. ..... Drlg. 1,835 ft.
Upham Gas Co.'s No. 1 Gooch, C NE SE, Sec. 81, Blk. 17, H.&G.N. Sur. ..... Drlg. 1,125 ft.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 66)

CRANE COUNTY

Duffey et al's No. 5 Cowden, 200 ft. each way from S and E lines Sec. 17, Blk. X, C.C.S.D.&R.G.N.G. ..... Top salt 970 ft.; drlg. 2,775 ft.
Gulf Prod. Co.'s No. 61 McElroy, Sec. 200, Blk. F, 660 ft. E of 58 ..... Shut down 2,916 ft.; shot 200 qts. from 2,760 to 2,898 ft.; swabbed 30 bbls. in 24 hrs.
Gulf Prod. Co.'s No. 63 McElroy, 2,762 ft. S and 2,310 ft. E of NW Sec. 206, Blk. F, C.C.S.D.&R.G.N.G.R.R. Sur. ..... Drlg. 2,130 ft.
Gulf Prod. Co.'s No. 7 Waddell, Sec. 10, Blk. B-23, 2,640 ft. from S, 330 ft. from W ..... Top salt 1,108 ft.; slight show gas 2,285 ft.; drlg. 2,415 ft.

CROCKETT COUNTY

Eppenaur et al's No. 2 Noelke, 500 ft. N and 1,250 ft. E of SE cor. Sec. 64, Blk. 1, I.&G.N.R.R. Sur. ..... Shut down 565 ft.
Lewis & Daniels' No. 1 Pecos River Bed, 19 yards S and 37 degrees E of NW cor. Sec. 33, Blk. 1, I.&G.N. Sur... Shut down 1,002 ft.
W. W. Donnelly & Young's No. 1 Shannon, SW SW SE Sec. 42, Blk. BB, T.C.R.A. Sur. ..... Shut down 745 ft.
W. W. Donnelly & Young's No. 1 Middlebuster, C Sec. 11, Blk. 9, D.&S.E. Sur. ..... 7,000,000 ft. gas at 1,663 ft.; shut down 1,755 ft.
W. A. Moncrief et al's No. 1 Massie, 1,170 ft. N and 1,320 ft. E of SW cor. Sec. 47, Blk. UV, G.C.&S.F. Sur. ..... 3,000,000 ft. gas 1,198 ft.; shut down 1,233 ft.; rig burned.

CULBERSON COUNTY

Deep Rock Oil Co. et al's No. 1 Kloh-Rumsey, 800 ft. S and 1,422 ft. E of NW cor. Sec. 33, Blk. 59, Twp. 7, T.&P.R.R. Sur. ..... Set 8¼-in. casing 1,433 ft.; shut down 1,600 ft.
Hickey & Stiver's No. 1 C. O. Finley, 600 ft. N and 1,980 ft. W Sec. 20, Blk. 82 ..... Small oil show 1,331 ft.; pipe set 1,418 ft.; drlg. 2,025 ft.
W. S. Hillyer's No. 1 McGregor, C NW Sec. 14, Blk. 81 ... Shut down 720 ft.; preparing to start up.
Scott & Dittman's No. 1 Miller, 1,160 ft. N and 2,480 ft. E Sec. 1, Blk. 97, Public School Land ..... Rainbow 1,056 ft.; 300 ft. sulphur water 1,725 ft.; drlg. 1,837 ft.; reported 200 ft. oil in hole.

EL PASO COUNTY

Sillex's No. 1 Malone, 2,200 ft. SW and NW Sec. 46, J. M. Day Sur. ..... Shut down 1,010 ft.

EDWARDS COUNTY

A. M. Griffith's No. 1 Wardlow, Sec. 60, V-8, J. C. Clift Sur. ..... Drlg. 1,910 ft.

FISHER COUNTY

Bickerstaff et al's No. 1 McWhirter, 2,640 ft. E and 150 ft. N of SW cor. of Sec. 295, Blk. 2, H.&T.C. Sur. .... Shut down 2,000 ft. for orders.
Cranfill & Reynolds' No. 2 Willingham, 1,980 ft. S and 2,310 ft. W of NE cor. Sec. 207, B.B.B.&C.R.R. Sur... Fishing 3,486 ft.
Cranfill & Reynolds' No. 1 Fleming, 1,980 ft. S and 2,310 ft. E of NW cor. Sec. 207, B.B.B.&C.R.R. ..... Oil show 2,905 ft.; set 6-in. 3,160 ft.; shut down 3,318 ft.
Dunnegan Bros.' No. 1 T. Henry, 330 ft. N and E of SE cor. Sec. 21, George W. Burdett Sur. No. 322, but in Sec. 4, Robert Hibbett Sur. No. 331 ..... Drlg. 3,390 ft.
Gillman-McMurray & French's No. 1 Cleveland, 781 ft. N and 1,336 ft. W of SE cor. Sec. 116, Blk. 2, H.&T.C. Sur. ..... Drlg. 3,460 ft.
Magnolia Pet. Co.'s No. 1 Lee, Sec. 357, 2,310 ft. from N and 4,286 ft. from W ..... Building rig.
Mesa Oil Co.'s No. 1 Griffin, 849 ft. N and 465 ft. E of NE cor. Sec. 20, School Land ..... Shut down 2,985 ft.
Texas-Phillips' No. 1 Hall, 330 ft. N and W of SE cor. Sec. 6, Blk. 20 ..... Hole full water 3,185 ft.; underreaming 3,225 ft.
White Eagle Oil & Ref. Co.'s No. 1 Hughes, 4,942 ft. S and 560 ft. W of NE cor. Cosby Sur. 220 ..... Fishing 2,382 ft.

GARZA COUNTY

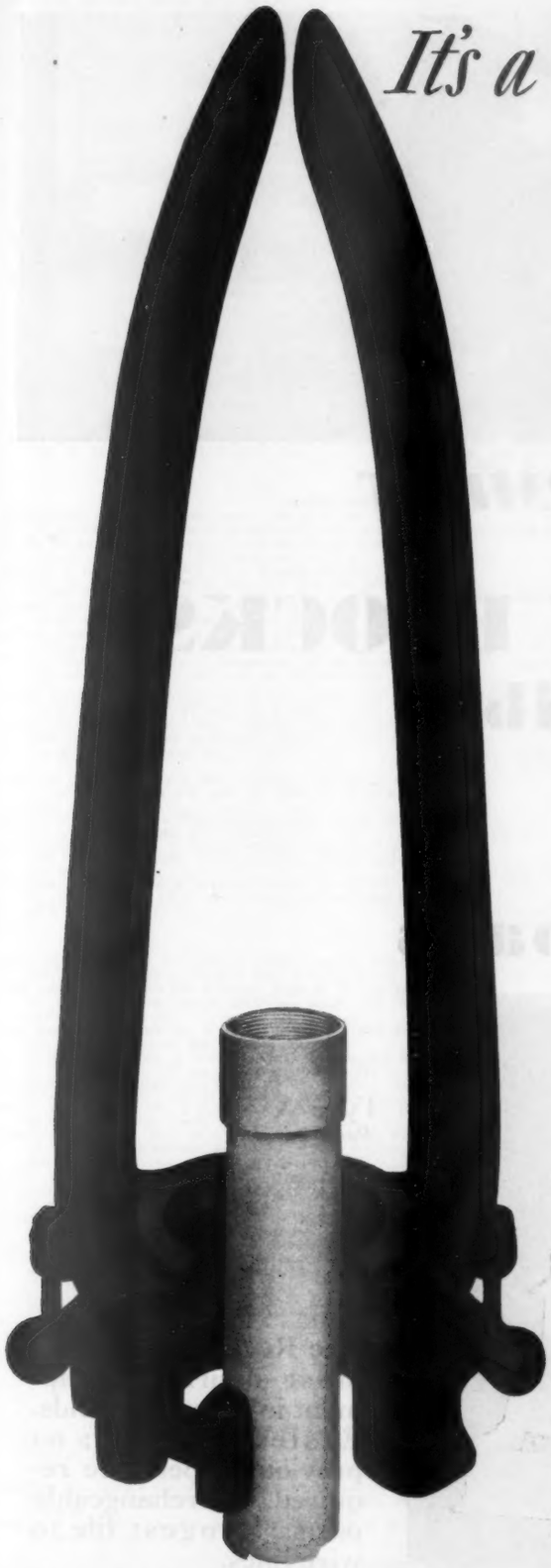
Emerald Oil Co.'s No. 1 J. C. Bargsley, 2,310 ft. from E and 330 ft. N of SW cor. Sec. 135, Blk. 5, H.&G.N.... Location.
Emerald Oil Co.'s No. 1 J. S. Reed, 990 ft. W and 330 ft. N of SE cor. Sec. 135, Blk. 5, H.&G.N.R.R. Sur. ..... Drlg. 2,490 ft.
Gulf Prod. Co.'s No. 1 Street, C Sec. 7, Blk. 8, H.&G.N. R.R. Sur. ..... Rig.
Texas State Oil Co.'s No. 1 Edward, 990 ft. W, 330 ft. N of SE cor. Sec. 19, Blk. 34, Twp. 2s, T.&P. ..... Location.

GLASSCOCK COUNTY

Chas. Daniel et al's No. 1 Meek, 2,310 ft. W and 1,600 ft. N of SE cor. Sec. 7, Blk. 34, Twp. 3s, T.&P. Sur. .. Shut down 500 ft.
Gibson-Johnson's No. 1 Dean, 1,320 ft. S and E of NW cor. Sec. 2, Blk. 33, Twp. 2s, T.P.R.R. Sur. ..... Drlg. 405 ft.
World Oil Co'.s No. 1-C McDowell, 1,650 ft. S and 2,310 ft. W of NE cor. Sec. 21, Blk. 34 ..... Show free oil 2,335-51 ft.; total depth 2,398 ft.; pumped 237 bbls. on 24-hr. test; shut down.
Texas State Oil Co.'s No. 1 Coffey, 330 ft. from S and 990 ft. from E Sec. 19, Blk. 34, Twp. 2s ..... Location.

HOWARD COUNTY

Amerada Pet. Corp.'s No. 10 Roberts, Sec. 137, Blk. 29, 990 ft. from N and 330 ft. from E ..... Drlg. 1,487 ft.
F. H. E. Oil Co.'s No. 11-B Dora Roberts, 1,700 ft. S and 2,310 ft. E of NW cor. Sec. 137, Blk. 29, W.&N.W. Sur. ..... Fishing 2,510 ft.
F. H. E. Oil Co.'s No. 5-D Dora Roberts, 2,310 ft. S and 1,650 ft. E of NW cor. Sec. 136, Blk. 29 ..... Set 6-in. casing 2,930 ft.; shut down.
Fuhrman Pet. Co.'s No. 1 Read, 2,310 ft. N and 330 ft. E of SW cor. Sec. 41, Blk. 32, Twp. 1n, T.&P.R.R. Sur... Location.
Gibson & Johnson's No. 1 Read, 660 ft. N and W of SE cor. Sec. 47, Blk. 30, Twp. 1n, T.&P.R.R. Sur. ..... Drlg. 2,485 ft.
Green et al's No. 1 Slaughter, C SW Sec. 32, Blk. 31, Twp. 3n, T.&P.R.R. Sur. ..... Shut down 3,514 ft.
Humble O. & R. Co.'s No. 3 Clay, Sec. 138, Blk. 29, 1,650 ft. from N and 330 ft. from W ..... Shut down 1,590 ft.
Magnolia Pet. Co.'s No. 2 Hyman, 1,320 ft. W and 1,220 ft. N of SE cor. Sec. 88, Blk. 29, W.&N.W. Sur. ..... Set 10-in. casing 710 ft.
Magnolia Pet. Co.'s No. 13 Dora Roberts, 2,440 ft. N and 1,650 ft. E of SW cor. Sec. 136, Blk. 29, W.&N.W. Sur. ..... Shut down 2,927 ft.
Marland Prod. Co.'s No. 3 Clay-F, 250 ft. S and 660 ft. W of NE cor. Sec. 138, Blk. 29, W.&N.W.R.R. Sur. ... Shut down 2,675 ft. with show oil 2,595-2,675 ft.
Marland Prod. Co.'s No. 1 Clay-I, 210 ft. E and 1,520 ft. N of SW cor. Sec. 127, Blk. 29, W.&N.W.R.R. Sur. ..... Top pay 1,815 ft.; shut down 1,851 ft.; swabbed 17 bbls. oil in 12 hrs. while cleaning out after shot.
Marland Oil Co.'s No. 1 Clay-H, 330 ft. S and 990 ft. W of NE cor. Sec. 155, Blk. 29 ..... Location.
Marland Oil Co.'s No. 2 Clay-H, 990 ft. S and W of NE cor. Sec. 155, Blk. 29 ..... Location.
McGinley & Seigler's No. 1 Barnett, 330 ft. S and E of NW cor. Sec. 92, Blk. 29, W.&N.W.R.R. Sur. ..... Location.
McGinley et al's No. 2 Hyman, Sec. 92, Blk. 29, W.& N.W.R.R. Sur. ..... Rigging up.
Moody Oil Corp.'s No. 11 Roberts-E, 1,550 ft. S and W of NE Sec. 136, Blk. 29, W.&N.W.R.R. ..... Drlg. 837 ft.
Moody Oil Corp.'s No. 12 Roberts-E, Sec. 136, Blk. 29, 1,650 ft. from N and 2,310 ft. E ..... Drlg. 1,348 ft.
Moody Oil Corp.'s No. 13 Roberts-E, 2,310 ft. S and 2,260 ft. E of NW cor. Sec. 137, Blk. 29, W.&N.W.R.R. Sur... Drlg. 2,601 ft.; top pay 2,571 ft.; bailing.
Moody Corp.'s No. 14 Roberts-E, Sec. 136, Blk. 29, 1,650 ft. from N, 990 ft. from E ..... Location.
Peck et al's No. 1 Scrivner, 2,440 ft. S and E of NW cor. Sec. 12, Blk. 32, Twp. 2s, T.&P.R.R. ..... Drlg. 1,835 ft.
Plymouth Oil Co.'s No. 2 Kloh et al, 900 ft. S and 1,650 ft. W of NW cor. Sec. 5, Blk. 32, Twp. 2s, T.&P. R.R. Sur. ..... Top pay 2,236 ft.; swabbing; total depth 2,360 ft.; cleaning out.
Plymouth Oil Co.'s No. 3 Kloh et al, 1,650 ft. S and 990 ft. E of NW cor. Sec. 5, Blk. 32, Twp. 2s, T.&P.R.R. Sur. ..... Top pay 2,189 ft.; hole full oil; shut down 2,300 ft. to put on pump.
Schermerhorn Oil Co.'s No. 6 D. Roberts-A, 1,650 ft. S and 330 ft. W of NE cor. Sec. 137, Blk. 29, W.& N.W.R.R. Sur. ..... Drlg. 2,320 ft.
Superior Oil Co.'s No. 14 Dora Roberts-B, 2,310 ft. E and 330 ft. S of NW cor. Sec. 137, Blk. 29, W.&N.W. Sur. ..... Shut down 200 ft.
Superior Oil Co.'s No. 15 Dora Roberts-B, 2,310 ft. S and 330 ft. E of NW cor. Sec. 137, Blk. 29, W.&N.W. R.R. Sur. ..... Straightreaming 2,565 ft.



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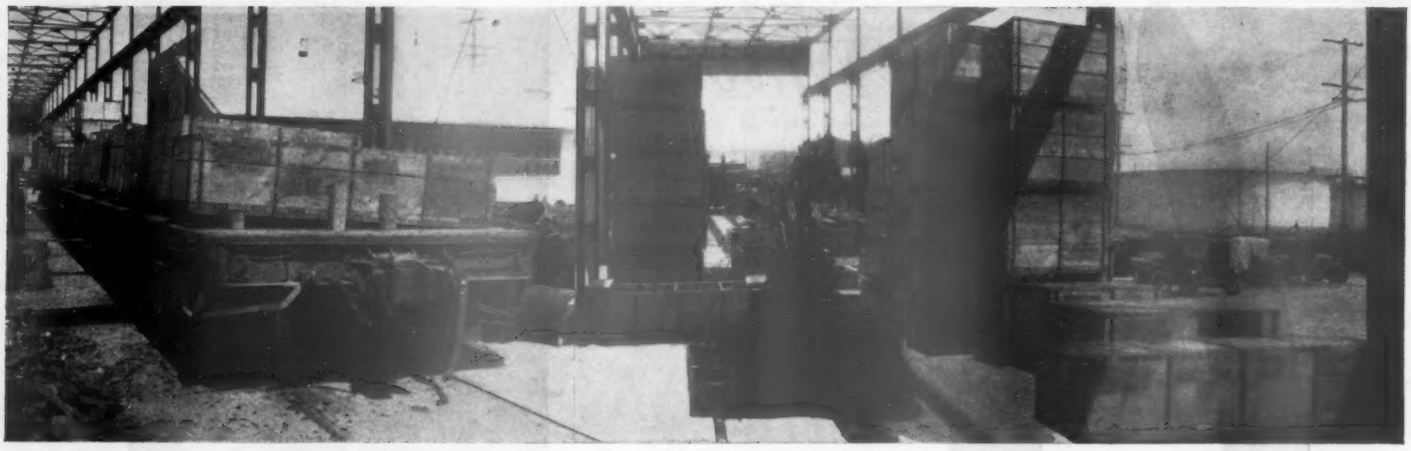

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Sweeney et al's No. 3 Chalk, Sec. 124, Blk. 29, 2,440 ft. from N and 2,440 ft. from W ..... Shut down 1,720 ft.; fishing.
Ward Oil Co.'s No. 7 Roberts, 2,310 ft. N and 330 ft. E of SW cor. Sec. 127, Blk. 29, W.&N.W.R.R. Sur. ..... Shut down 1,987 ft.

HUDSPETH COUNTY

American Land Co.'s No. 1 Lockhart & Roseborough, C SE Sec. 5, School Blk. 21 ..... Drlg. 670 ft.
California Co.'s No. 1 University, 3,521 ft. N and 2,554 ft. E of SW cor. Sec. 19, Blk. E ..... Set 16-in. casing 591 ft.; drlg. 1,214 ft.
Western States Oil Co.'s No. 1 Moore, C SE Sec. 16, Blk. 71, Twp. 6, T.&P. Sur. ..... Straightreaming 2,700 ft.; shut down 2,760 ft.
Western States Oil Co.'s No. 1 Gardner & Moseley, NE NW Sec. 12, Blk. 18 ..... Hole full water 2,945 ft.; fishing casing 3,155 ft.

IRION COUNTY

Fuhrman Pet. Co.'s No. 1 J. O. Suggs, Lease 1, C SE Sec. 3,024, Blk. 24, H.&T.C. Sur. ..... Drlg. 425 ft.
Kimbrough & Flinchbaugh's No. 1 Tankersley, 160 ft. S and 200 ft. W of NE cor. Sec. 712, Ford Willig Sur. ..... Show oil 1,318-29 ft.; total depth 1,329 ft.; swabbing 15 bbls.
Kimbrough & Tuel's No. 1 J. M. Nutt, 1,920 ft. S, 200 ft. E of NW cor. Sec. 5, Gonzales Co. School Land ..... Set 6-in. casing 1,360 ft.; show oil and gas; shut down 1,420 ft.
Pecos Valley Oil Co.'s No. 2 Stocks, Sec. 19, Blk. 3, 1,020 ft. from S and W, H.&T.C. Sur. ..... Spudding.
Wesley West et al's No. 1 J. D. Suggs, SE NW SE Sec. 19, Blk. 7, H.&T.C. Sur. ..... Top pay 3,368 ft.; swabbed 35 bbls. oil and 40 bbls. water; 35.8 gravity oil; show oil 5,480-85 ft.; show oil 5,660-70 ft.; show oil 6,772-75 ft.; drlg. 6,805 ft.

JEFF DAVIS COUNTY

J. K. Hughes Dev. Co.'s No. 2 Means, 1,622 ft. N line, 600 ft. W line Sec. 345, H.&T.C. Sur. ..... Show gas 3,271 ft.; fresh water 3,000-05 ft.; underreaming 5 3/16-in. casing; drlg. 4,005 ft.; 600 ft. fresh water 4,000-26 ft

JONES COUNTY

Condor Pet. Co.'s No. 1 McDonald, 340 ft. S and 240 ft. W of NE cor. Lot 59, G. A. Kirkland Sur. A-550 ..... Underreaming 2,425 ft.
J. E. Brewer's No. 1 Goodman, 150 ft. N and E of SW cor. Sec. 15, Blk. 19, T.&P.R.R. Sur. ..... Location.
Cosden & Herbert Oil Co.'s No. 1 Bickley, 320 ft. N and 310 ft. E of SW cor. S half NW Sec. 50, Blk. 18, T.&P. Sur. ..... Rigged up and shut down.
Cosden-Herbert et al's No. 3 Bickley, 330 ft. N and W of SE cor. of S half NW Sec. 50, Blk. 18 ..... Rig.
W. G. Clark et al's No. 1 Collins, 330 ft. S and E of NW cor. Sec. 29, Blk. 18, T.&P.R.R. Sur. ..... Location.
W. G. Clark et al's No. 1 Dickenson, W 80 ac. of N 160 ac. of S 320 ac. out of H. B. Williams Sur. No. 273 ..... Drlg. 2,340 ft.
P. K. French's No. 1 Lieson, 150 ft. N and E of SW cor. of E half NW Sec. 31, Blk. 14, T.&P.R.R. Sur. ..... Drlg. 1,405 ft.
Humble Oil & Ref. Co.'s No. 1 Bickley, 330 ft. N and 200 ft. E of SW cor. of N half of S half of SW Sec. 50, Blk. 18, T.&P.R.R. Sur. ..... Top pay 2,472 ft.; swabbed 60 bbls. in 18 hrs.; drlg. 2,477 ft.
Humble Oil & Ref. Co.'s No. 2 Bickley, 330 ft. S and W of NE cor. of SW Sec. 50, Blk. 18, T.&P.R.R. Sur. ..... Rig.
McGinley Corp.'s No. 1 Whittemore, 660 ft. N and W of SE cor. SE NE Sec. 39, B.B.B.&C. ..... Drlg. 2,005 ft.
McNeeley et al's No. 1 Roscoe Bland, 1,175 ft. N and 240 ft. W of SE cor. Subdivision 20, A-164, DeWitt Co. School Land ..... Spudded and shut down.
Phillips Pet. Co.'s No. 1 Walters, 990 ft. S and 330 ft. W of NE cor. N 80 ac. of W 160 ac. of NW Sec. 16, Blk. 19, T.&P. Sur. ..... Show oil 2,442-68 ft.; top pay 2,863 ft.; gravity 35.1; pumped 20 bbls. in 15 hrs.; shut down 2,865 ft.
Sedgwick Oil & Gas Co.'s No. 1 Brown, 660 ft. N and 1,320 ft. E of SW cor. Sec. 9, Blk. 1, T.&N.O. Sur. ..... Location.
The Texas Company's No. 2 Camp, 2,829 ft. N and 323 ft. W of SE cor. Camp 189.5-acre lease, Sec. 13, T.&P. Sur., Blk. 19 ..... Total depth 2,355 ft.; to skid rig.
The Texas Company's No. 3 Camp, 1,189 ft. S and 326 ft. W of NE cor. of Sec. 13, Blk. 19, T.&P. ..... Ran 6-in. casing 2,325 ft.
U. L. Tomberlin's No. 1 Horn, 1,980 ft. N and 600 ft. E of SW cor. of 502 ac. of Penney Sur. A-283 ..... Drlg. 2,190 ft.
E. M. Treat Oil & Gas Co.'s No. 1 Hodge, 750 ft. S and 2,714 ft. W of NE cor. of S half A. Bell Sur. ..... Shut down 1,505 ft.
W. D. Wells et al's No. 1 Britton, 150 ft. N and 890 ft. E SW cor. 640-ac. tract, H.&W. Sur. 354-355 ..... Drlg. 2,225 ft.
White Eagle Oil & Ref. Co.'s No. 1 W. B. Teague, 933 ft. N and W of SE cor. Sec. 30, Austin & Williams Sur. No. 329 ..... Drlg. 845 ft.

KIMBLE COUNTY

Lindsay Bros.' No. 1 Anderson, Sec. 167, 1,320 ft. from N and E ..... Drlg. 100 ft.
McLean & Jamison's No. 1 Cannon, 1,940 ft. N and 300 ft. W of SE cor. Robert Cochran Sur. ..... Drlg. 500 ft.

LOVING COUNTY

Lockhart & Co.'s No. 1 Hazell, 2,792 ft. SW of NE line and 660 ft. NW of SE line Sec. 84, Blk. 33, H.&T.C. R.R. Sur. ..... Drlg. 450 ft.
Lockhart & Co.'s No. 2 Hayzell, 330 ft. from NE and SE line of Sec. 84, Blk. 33, H.&T.C.R.R. Sur. ..... Top salt 700 ft.; drlg. 960 ft.
Lockhart & Co.'s No. 1 Johnson, 660 ft. S and 1,980 ft. W of NE cor. Sec. 20, Blk. 56, Twp. 1, T.&P.R.R. Sur. ..... Top salt 1,110 ft.; drlg. 2,010 ft.
Lockhart & Co.'s No. 1 Wheat-H, 990 ft. from NE and SE lines Sec. 85, Blk. 33, H.&T.C.R.R. Sur. ..... Top salt 720 ft.; set 8¼-in. casing 2,295 ft.; show oil 4,147 ft.; swabs 10 bbls. per day; total depth 4,156 ft.

MENARD COUNTY

Cromwell & Duffey's No. 1 Winslow, C SE Sec. 32, T.&N.O. Sur. ..... Drlg. 986 ft.

MIDLAND COUNTY

Phillips Pet. Corp.'s No. 1 Stokes, 440 ft. S and W of NE cor. S. Beall Sur. No. 101, Blk. 37, Twp. 2s, T.P.R.R. Sur. ..... Top salt 1,610 ft.; drlg. 3,725 ft.
Shoupe et al's No. 1 Roy Parks, 1,320 ft. N and W Sec. 34, Blk. 41 ..... Top lime 4,744 ft.; shut down 4,980 ft.

MITCHELL COUNTY

Harry Adams' No. 2 Ellwood, Sec. 15, Blk. 13, 1,170 ft. from S and 2,490 ft. from W ..... 1,500,000 ft. gas from 547 to 551 ft.; set 10-in. casing 572 ft.
The California Co.'s No. 2, Clark Lease No. 2, 2,190 ft. N and E of SW cor. Sec. 14, Blk. 28, Twp. 1n, T.P.R.R. Sur. ..... Drlg. 2,650 ft.
California Co.'s No. 7 Foster, Lease No. 1, Sec. 6, Blk. 29, Twp. 1s, T.P.R.R. Sur. ..... Moving in material.
McGinley & Seiger's No. 1 Scott, C of NE of SW Sec. 36, Blk. 17, S.P.R.R. Sur. ..... Shut down 730 ft.
Republic Prod. Co.'s No. 1 Scott, 330 ft. N and E of SW Sec. 20, Blk. 17, S.P.R.R. Co. ..... Spudding.
Simms Pet. Co.'s No. 1 Elwood, C SE of Sec. 29, Blk. 18, S.P.R.R. Sur. ..... Underreaming 10-in. casing 1,073 ft.; drlg. 3,375 ft.
Spence et al's No. 1 Brown, 2,040 ft. E and 1,320 ft. S NW cor. Sec. 37, Blk. 25, T.&P. ..... Shut down 800 ft.
Teas & Wheeler's No. 1 Radford, 1,320 ft. N and W of Sec. 1, Blk. 37, T.&P. Sur. ..... Shut down 4,048 ft.
Westyde Investment Co.'s No. 1 Elwood, C SW Sec. 38, Blk. 16, S.P.R.R. Sur. ..... Rigging up.
Wilson et al's No. 1 Elwood, 330 ft. S and W NE cor. Sec. 54, Blk. 18, S.P.R.R. Sur. ..... Drlg. 675 ft.

NOLAN COUNTY

L. G. Bradstreet et al's No. 1 Kuteman, C NW Sec. 95, Blk. X, T.&P. Sur. ..... Drlg. 1,180 ft.
Phillips Pet. Co.'s No. 1 Plunkett, 330 ft. N and W of SE cor. NW Sec. 68, Blk. 23, T.&P. Sur. ..... Drlg. 990 ft.

PECOS COUNTY

Alexander & Lyle's No. 1 Myrtle Sellman, C SW SE Sec. 20, Blk. Z, T.S.Ry. Sur. ..... Top salt 814 ft.; top lime 1,602 ft.; 3,400,000 ft. gas from 1,611-26 ft.; spraying very little oil; sulphur water 1,652 ft.; shut down 1,655 ft.
Atlantic O. P. Co.'s No. 1 Trees, 330 ft. from N and 990 ft. from W line Sec. 108, Blk. 8, H.&G.N.R.R. Sur. ..... Shut down 1,305 ft.
M. H. Black's No. 1 P.V.O. Co., 2,310 ft. from SE and 1,650 ft. from SW lines Sec. 22, Blk. 10, H.&G.N. Sur. ..... Top salt 1,090 ft.; total depth 1,647 ft.; top pay 1,618 ft.; made one 5-bbl. head oil; was shot; hole bridged.
H. R. Bell et al's No. 1 Gray, 150 ft. from S and 2,490 ft. from W line Sec. 593, G.C.&S.F.R.R. Sur. ..... Est. 200,000 ft. gas 1,250 ft.; drlg. 1,465 ft.; gas exhausted.
Buell & Hagan's No. 1 University-B, 330 ft. N and 2,310 ft. W of SE cor. Sec. 36, Blk. 18, University Land ..... Drlg. 1,100 ft.
Cowboy Evans' No. 1 Pecos Valley, 2,310 ft. from NW line, 990 ft. from SW line of Sec. 36, Blk. 3, H.&T.C. R.R. Sur. ..... Spudded and shut down.
Cromwell & Kimberlin's No. 1 Jackson, 2,490 ft. from NW line, 1,170 ft. from NE line Sec. 28, Blk. 3, H.&T.C.R.R. ..... Location.
Crowley's No. 1 Heiner, 2,400 ft. each way from N and E lines Sec. 589, G.C.&S.F.R.R. Sur. ..... Shut down 1,288 ft.
California Co.'s No. 2 Smith, Lease 5, Sec. 16, 1,550 ft. from W and 200 ft. from N line Blk. 194, G.C.&S.F. R.R. Sur. ..... Bailed 15 bbls. oil in 24 hrs.; 43,000 ft. gas; shut down 1,579 ft.
Clayton Williams' No. 1 Sanford, 160 ft. from NW line 1,150 ft. from SW line Sec. 55, Blk. 10, H.&G.N. ..... Drlg. 200 ft.
Doran & McGee's No. 1 Pecos Valley, Sec. 34, Blk. 3, H.&T.C. ..... Fishing 1,030 ft.
Ditto Oil Co.'s No. 1 J. M. Montgomery, Sec. 104, Blk. 331, A-16,387 ..... Shut down 1,505 ft.
Independent Oil & Gas Co.'s No. 1 Iowa Realty Trust Co., 2,310 ft. each way NE SE line Sec. 23, Blk. 10, H.&G.N.R.R. ..... Location.
Sam Kitts and others' No. 1 Sherbino, 330 ft. from N and 990 ft. from W line Sec. 52, Blk. C-4, G.C.&S.F. R.R. ..... Fishing 250 ft.
Marland Oil Co.'s No. 1 University, Sec. 10, Blk. 17, 1,620 ft. from N, 1,020 ft. from E ..... Location.
Matador Oil Co.'s No. 3 Smith, 2,310 ft. from N and 990 ft. from E lines, Sec. 24, Blk. 194, G.C.&S.F.R.R. Sur. ..... Moving in machine.
Mauch & Kroger's No. 1 Holmes, Sec. 5, Blk. 178, T.C. Sur. ..... Shut down 1,442 ft.
McMan Oil & Gas Co.'s No. 6 Smith, C Sec. 25, Blk. 194, 2,127 ft. from N and 1,740 ft. from W ..... Drlg. 200 ft.
Moncrief et al's No. 1 Tippett, 1,980 ft. from S and 660 ft. from W lines of Sec. 46, Blk. 194, G.C.&S.F. Sur. ..... Drlg. 560 ft.
R. E. Moore's No. 1 Arnold, 1,320 ft. from S and 660 ft. from E lines of Sec. 18, Blk. 1, H.&T.C.R.R. ..... Drlg. 475 ft.
Perrin et al's No. 1 Eaton, 150 ft. each way from NE and NW lines Sec. 27, Blk. 3, H.&T.C. Sur. ..... 18,000,000 ft. gas 1,490-1,502 ft.; spraying salt water from behind 8¼-in. casing set at 1,180 ft.; shut down 1,502 ft.; 5 3/16-in. casing set on bottom with last joint perforated.
Plymouth Oil Co.'s No. 2 Perry, Sec. 29, Blk. 178, 330 ft. from N and E cor. ..... Drlg. 1,040 ft.
Phillips Pet. Co.'s No. 1 Pryor, 440 ft. S and E of NW cor. Sec. 78, Blk. OW, T.M.R.R. Sur. ..... Top pay 1,345 ft.; total depth 1,367 ft.; pumped 375 bbls. in 48 hrs.
Phillips Pet. Co.'s No. 2 Ramsey, 990 ft. S and 1,980 ft. W of NE cor. Sec. 17, Blk. 194, G.C.&S.F. Sur. ..... Underreaming 905 ft.
T. G. Shaw's No. 1 Yates, Sec. 58, Blk. 1, I.&G.N.R.R. Sur. ..... Location.
B. J. Spikes' No. 1 George Brown ..... Show oil 1,180-90 ft.; drlg. 1,226 ft.
Schumaker et al's No. 1 Williams et al, 330 ft. N of middle of S line Sec. 1, Blk. 117, G.C.&S.F. ..... Shut down 1,200 ft.
Southern Crude O. P. Co.'s No. 1 Jackson T-139, Sec. 28, Blk. 3, 1,487 ft. from NE, 2,518 ft. from SE cor. ..... Location.
Talbot and others' No. 1 Unsicker, 150 ft. each way from NE and SE cor. line of Sec. 25, Blk. 10, H.&G.N. Sur. ..... Location.
Taylor Link Oil Co.'s No. 1 University, 330 ft. from S and E Sec. 30, Blk. 16, University ..... Underreaming 605 ft.
Tidal Oil Co.'s No. 1 University, 1,320 ft. from S and W lines of Sec. 16, Blk. 20, University Land ..... Drlg. 185 ft.
Transcontinental Oil Co.'s No. 1 Sellman, 990 ft. N and W of SE cor. Sec. 7, Blk. 194, G.C.&S.F.R.R. Sur. ..... Drlg. 1,965 ft.
Transcontinental Oil Co.'s No. 1 University, NE NW SW Sec. 18, Blk. 18 ..... Top lime 1,155 ft.; shut down 4,407 ft.
Transcontinental Oil Co.'s No. 2 University, C of SW SW Sec. 9, Blk. 17, University Land ..... Drlg. 2,205 ft.

PRESIDIO COUNTY

Phillips Pet. Co., Empire G. & F. Co., Delmar Oil Co. and C. E. Miller's No. 1 Tootle Est., C NE Sec. 75, Blk. 3, D.&P.R.R. Sur. ..... Set 8-in.; total depth 2,470 ft.; cleaning out.
L. C. Brite's No. 3 Brite, 2,500 ft. N and 2,300 ft. W of SE cor. Sec. 51, Blk. 12, G.H.&S.A. ..... Shut down 1,000 ft. for water well.

REAGAN COUNTY

Big Lake Oil Co.'s No. 1-C University, 2,598 ft. S and 250 ft. W of NE cor. Sec. 1, Blk. 2, University Land ..... Drlg. 2,545 ft.
Kemrow Co.'s No. 1 Sawyer Cattle Co., 1,320 ft. from N and 1,980 ft. from E line Sec. 8, J. G. Robinson Sur. ..... Location.
Skelly Oil Co.'s No. 1 University, 2,310 ft. N and 990 ft. W of SE cor. Sec. 32, Blk. 8 ..... Top salt 1,270 ft.; drlg. 2,745 ft.

REEVES COUNTY

Exploration Co.'s No. 1 A. A. Kinney, 1,500 ft. W of NE cor. Sec. 26, Blk. C-18, Public School Land, elev. 2,847 ft. ..... Total depth 2,900 ft.; shut down.
Earl Henby's No. 1 Brooks, 1,980 ft. N and 660 ft. W Sec. 16, Blk. 59 ..... Spudded and shut down 100 ft.
Southern Crude O. P. Co.'s No. 1 Kloh-Rumsey, 2,310 ft. N and W SE cor. Sec. 23, Blk. 51 ..... Hole full water 1,275 ft.; shut down 1,360 ft.
David R. Thompson's No. 1 A. A. Eddins ..... Fishing casing 5,658 ft.; underreaming 8¼-in. casing.
Robert Penn et al's No. 1 Bowles, 2,310 ft. SW of NE cor. Sec. 36, Blk. 50, Twp. 8, T.&P.R.R. Sur. ..... Top salt 1,725 ft.; hole full fluid 5,176 ft.; underreamed 6-in. casing 5,225 ft.; total depth 5,418 ft.
Lee O. White et al's No. 1 Kloh-Rumsey, 660 ft. S and E of NW cor. Sec. 5, Blk. 51, Twp. 10, T.&P. Sur. ..... Drlg. 1,450 ft.

RUNNELS COUNTY

Boyce et al's No. 1 E. O. Lange, 2,300 ft. S and 6,900 ft. W of NE cor. Austin & Williams Sur. No. 262 ..... Shut down 1,350 ft.
Foster et al's No. 1 Currie, 1,866 ft. SE of NW line, 335 ft. SW of NE line Gray Carroll Sur. ..... Drlg. 625 ft.
Independent Oil & Gas Co.'s No. 1 Will Rollwitz, 330 ft. S and W of NE cor. S half M. Salinas Sur. No. 20½ .. Drlg. 2,600 ft.
Marland Prod. Co.'s No. 1 August Herring, 330 ft. S and 1,650 ft. W of NE cor. Sec. 39, E.T.R.R. Co. Sur.. Drlg. 3,600 ft.
McLean et al's No. 1 G. W. Clayton, 150 ft. N line, 270 ft. from W line Sec. 135, E.T.R.R. ..... Shut down 1,185 ft.
Nourse & Tilton's No. 1 R. A. Stokes, 200 ft. S, 600 ft. E of NW cor. G.C.&S.F. Sur. No. 2 ..... Shut down 3,810 ft.
Pure Oil Co.'s No. 3 Giesecke, 11,656 ft. S and 1,269 ft. E of NW cor. Hughes ..... Drlg. 1,625 ft.
Pure Oil Co.'s No. 1 Russell, 367 ft. E and 12,231 ft. S of NW cor. Hughes Sur. No. 227 ..... Location.
Pure Oil Co.'s No. 2 Russell, 945 ft. E and 12,015 ft. S of NW cor. Sur. No. 227 ..... Location.
Vacuum Oil Co.'s No. 4 McMillan, 555 ft. S and 717 ft. W of NE cor. Lot 22, Domingo Diaz Sur. No. 532 .... Temporarily abandoned.

SCHLEICHER COUNTY

Fort McKavet's No. 1 Tisdale, Sec. 1,499, River Section, 3,630 ft. from S, 150 ft. from W ..... Shut down 3,023 ft.
Interstate's No. 1 Whitten, 1,320 ft. from N and W Sec. 35, Blk. LL, T.C.R.R. Sur. ..... Shut down 3,540 ft.
Underwood's No. 1 Tisdale, 2,095 ft. from N and 1,185 ft. from E Sec. 74, Blk. LL ..... Spudded and shut down.

SCURRY COUNTY

I. B. Mims et al's No. 1 J. J. Koonsman, Sec. 216, Blk. 2, H.&T.C. Sur. ..... Spudded and shut down 300 ft.
G. E. Dickman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur. ..... Shut down 2,710 ft.

STERLING COUNTY

F. & G. Oil Co.'s No. 1 W. L. Foster, C SE Sec. 20, Blk. 12, S.P.R.R. Sur. ..... Show oil 1,296-98 ft. and 1,356-58 ft.; fishing 2,182 ft.; shut down 2,503 ft.
George L. Miller's No. 1 Foster, 3,690 ft. S and 1,397 ft. W of NE cor. Sec. 4, Blk. 31, T.&P. Sur. ..... Set 12½-in. casing 830 ft.; set 8-in. casing 2,138 ft.; shut down 2,982 ft.

SUTTON COUNTY

Phillips Pet. Co.'s No. 1 A. G. Folman, 2,310 ft. S and 330 ft. W NE cor. Sec. 25, G.C.S.D.&N.G.R.R. Sur. ... Show gas 6,430 ft.; drlg. 6,633 ft.
L. G. Priest's No. 1 Allison, 1,320 ft. N and E of SW cor. Sec. 52, Blk. A, T.&P. Sur. ..... Set 15-in. casing 530 ft.; fishing 2,440 ft.
Southern C. O. P. Co.'s No. 1 Allison, 2,310 ft. S and 320 ft. W of NE Sec. 41, Blk. K, G.H.&S.A. Sur. ..... Est. 1,000,000 ft. gas from 4,640-45 ft.; drlg. 4,685 ft.

TAYLOR COUNTY

V. B. Jameson's No. 1 Webb, 1,170 ft. S and W of NE cor. Sec. 46, Lunatic Asylum Land ..... Drlg. 3,115 ft.
Root Drlg. Co.'s No. 1 Martin, 990 ft. E and 1,650 ft. N of SW cor. Sec. 30, Blk. 19, T.&P.R.R. Sur. ..... Drlg. 2,250 ft.
Wentz Oil Corp.'s No. 1 Armour, 275 ft. N and 330 ft. W of SE cor. W half Sec. 16, Blk. 6, S.P.R.R. Sur. .. Shut down 2,250 ft.

TERRELL COUNTY

Big-Bend Oil Co.'s No. 1 Barrett, C NW Sec. 155, Blk. D, M.-K.-T.R.R. Sur. ..... Spudded and shut down.
Keck Pecos Trust Co.'s No. 1 Hamilton, C Sec. 6, Blk. D-7, E.L.R.R. Sur. ..... Shut down 2,200 ft.
Mrs. J. B. McPhee's No. 1 Sam Belt, C Sec. 78, Blk. D-7, E.L.&R.R. Sur. ..... Drlg. 470 ft.
Milham Exploration Co.'s No. 1 Bassett, Sec. 76, Blk. Y, W. E. Robertson Sur. ..... Cem. 6⅝-in. casing 3,986 ft.; shut down 4,800 ft.
Woodley & Jones' No. 1 Pankenham, C SE NW Sec. 43, Blk. B-2, C.C.S.D.&N.G.R.R. Sur. ..... Drlg. 675 ft.

TERRY COUNTY

Kingsland O. P. Co.'s No. 1 Brownfield, C NW SW SW Sec. 7, Blk. 1-A, E.L.R.R. Sur. ..... Fishing baller 5,080 ft.

TOM GREEN COUNTY

Fitzgerald & Taliaferro's No. 1 Bennett, C SW Sec. 1,628, E. H. Ringer ..... Shut down 1,920 ft.
Williams et al's No. 1 Willeke, 2,500 ft. N and 75 ft. E of SW cor. Sec. 3, Deaf & Dumb Asylum Land ..... Total depth 750 ft.; hole full sulphur water 750 ft.

UPTON COUNTY

Humble O. & R. Co.'s No. 11 Ricker, 1,320 ft. from NE cor. and 5,390 ft. from NW line Sec. 5, Denton Sur. A-127 ..... Top pay 2,347 ft.; total depth 2,434 ft.; plugged back 2,420 ft. to shut off water; hole filled 1,500 ft. with oil in 3 days.
Wentz Oil Co.'s No. 5 Shirk, 2,310 ft. N and 1,650 ft. W of SE cor. Sec. 35, Blk. 1, M.-K.-T.R.R. Sur. ..... Top salt 815 ft.; top pay 2,275 ft.; swabbed 60 bbls. in 24 hrs.; drlg. 2,393 ft.

YOAKUM COUNTY

Weekley Oil Corp.'s No. 1 Knight, C NW Sec. 791, Blk. D, John Gibson Sur. ..... Shut down 1,110 ft. for orders.

VAL VERDE COUNTY

Independent Operators' No. 1 Whitehead, SE SE Sec. 30, Blk. 4, I.&G.N. Sur., elev. 1,175 ft. ..... Shut down 4,850 ft.
O. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,130 ft. ..... Gas sand 2,491-2,520 ft.; tested 125,750 ft. gas; reset 8-in. 2,511 ft.; shut down 4,210 ft.
Producers Oil Co. et al's No. 1 Everett Bros., 2,310 ft. S and 330 ft. E of NW cor. Sec. 40, Blk. DB, C.C.S.D.&R.G.N.G. Sur. ..... Shut down 2,450 ft.
Dyar Bros. et al's No. 1 Wilson, 6,830 ft. N NE cor. Sec. 1, T.&P. Sur., thence 1,680 ft. E Sec. 115, Blk. E, G.C.&S.F. Sur. ..... Drlg. 2,915 ft.
Valvert Oil Corp.'s No. 1 Bassett, C NE Sur. 47, Blk. Y .. Set 15½-in. casing 767 ft.; set 10-in. casing 1,510 ft.; shut down 3,760 ft.

WARD COUNTY

Atlantic & Delmar Co.'s No. 2 Hayzlett, 150 ft. each way from W cor. E Sec. 17, Blk. 5, H.&T.C. ..... Hole full water 443 ft.; drlg. 910 ft.
Gulf Prod. Co.'s No. 2 Hutchins, 330 ft. N and E Sec. 7, Blk. O ..... Drlg. 1,085 ft.
Barstow Oil & Gas Co.'s No. 1 Gillespie, Sec. 50, Blk. 33.. Spudded and shut down.
Gulf Prod. Co.'s No. 5 O'Brien, 330 ft. each way NW of SW Sec. 18, Blk. F, G.M.M.B.&A. Sur. ..... Top salt 1,273 ft.; total depth 1,311 ft.
Gulf Prod. Co.'s No. 1 Wristen, 216 ft. NW, 1,107 ft. SE Sec. 13, Blk. 5 ..... Location.
J. H. L. Oil Co.'s No. 2 Hayzlett, 1,100 ft. from SW and 220 ft. from SE line Sec. 17, Blk. 5, H.&T.C. ..... Top pay 2,430 ft.; total depth 2,490 ft.; 107 bbls. 24 hrs.; shot 40 qts. 2,431-56 ft.; casing collapsed.
Kemper-Kimberlin's No. 1 Thompson, 1,470 ft. NE, 150 ft. NW Sec. 15, Blk. 5 ..... Location.
E. B. Loveiace et al's No. 1 Redman, 1,980 ft. NE of SW line and 1,980 ft. SE of NW line, Sec. 162, Blk. 34, H.&T.C.R.R. ..... Fishing 960 ft.
Shipley et al's No. 1 Monroe, 330 ft. SE SW Sec. 3, Blk. 1 ..... Location.

WINKLER COUNTY

American Maracaibo Co.'s No. 2 Hendricks-B, 1,980 ft. N and 1,650 ft. E of SW cor. Sec. 28, Blk. B-5 ..... Cem. 12½-in. casing 170 ft.; top lime 2,599 ft.; top pay 2,731 ft.; 2,000 ft.; oil; increase 2,875 ft.; show water 2,928-31 ft.; shut down 2,945 ft.
Barnsdall Oil Corp.'s No. 3 Tobe Morton, 990 ft. N and 330 ft. E of SW cor. Sec. 26, Blk. B-12 ..... Cellar.
Gulf Prod. Co.'s No. 1 Daugherty, 330 ft. S and W of NW and W of Sec. 22, Blk. 26 ..... Top lime 2,429 ft.; drlg. 2,452 ft.
Gulf Prod. Co.'s No. 1 Clapp, 330 ft. S and W Sec. 37, Blk. 26 ..... Location.
Humble O. & R. Co.'s No. 12 Hendricks-C, 1,980 ft. N and 1,325 ft. E of SW cor. Sec. 10, Blk. B-12 ..... Rigging up rotary.
Humble O. & R. Co.'s No. 1 Walton-A, 2,310 ft. N and 330 ft. E SW cor. Sec. 48, Blk. 26 ..... Top salt 970 ft.; top lime 2,267 ft.
Kermit Dev. Co.'s No. 1 Carter, 640 ft. S, 2,227 ft. W Sec. 27, Blk. B-3 ..... Shut down 400 ft. to cure title.
Magnolia Pet. Co.'s No. 2 Scarborough, 1,620 ft. N and 990 ft. W SE cor. Sec. 1, Blk. C-22 ..... Drlg. 1,230 ft.
Prairie O. & G. Co.'s No. 2 Daugherty, 330 ft. S and 990 ft. E of NW cor. Sec. 16, Blk. 74 ..... Top lime 2,756 ft.; top pay 2,890 ft.; swabbed 40 bbls. oil daily.
Prairie O. & G. Co.'s No. 1 Scarborough, 990 ft. N and 1,650 ft. W of SE cor. Sec. 1, Blk. C-22 ..... Cem. 12½-in. casing 260 ft.; top salt 1,400 ft.; set 8¼-in. casing 2,845 ft.; top pay 2,930 ft.; total depth 3,131 ft.; water; plugged back to 3,100 ft.; bailing casing to test.
Shell Pet. Co.'s No. 1 Leck, 990 ft. S and 1,650 ft. E of NW cor. Sec. 3, Blk. 74 ..... Top lime 2,789 ft.; top pay 3,144 ft.; 1,900 ft. fluid in hole; shut down for orders.
Shell Pet. Co.'s No. 6 Scarborough, 330 ft. N and W of SE cor. NW SE Sec. 1, Blk. C-22 ..... Drlg. 1,385 ft.
Skelly Oil Co.'s No. 2 Hendricks-C, 1,320 ft. N and 2,310 ft. W of SE cor. Sec. 10, Blk. B-12 ..... Top lime 2,636 ft.; show oil 3,034 ft.; hole full sulphur water 3,030-39 ft.; total depth 3,055 ft.; flowing 1,000 bbls. fluid, 99 per cent water; pulling 6-in. casing.
Skelly Oil Co.'s No. 2 Leck, 2,310 ft. N and 330 ft. E SW cor. Sec. 22, Blk. 26 ..... Drlg. 2,180 ft.
Southern Crude O. P. Co.'s No. 5 Hendricks T-67-2-D, 990 ft. from W, 2,310 ft. from S, Sec. 28, Blk. 26 .... Building rig.
Simms Pet. Co.'s No. 2 Sealey, 2,434 ft. S and 990 ft. W of NE cor. Sec. 50, G.M.M.&A. Sur. ..... Rotary rig.
Southern Crude O. P. Co.'s No. 2 Hendricks T-88-CX, Sec. 21, Blk. 26 ..... Drlg. 1,565 ft.
Southern Crude O. P. Co.'s No. 3 Hendricks T-88-CX, 2,310 ft. N and 330 ft. W of SE cor. Sec. 21, Blk. 26.. Running 12½-in. casing 505 ft.; drlg. 1,210 ft.
Southern Crude O. P. Co.'s No. 7 Hendricks T-88-K, 1,320 ft. S and 1,650 ft. W of NE cor. Sec. 41, Blk. 26 ..... Drlg. 2,450 ft.
Southern Crude O. P. Co.'s No. 32 Hendricks T-88-M, 1,760 ft. S and 990 ft. W of NE cor. Sec. 33, Blk. 26, School Land ..... Top pay 2,708 ft.; total depth 2,732 ft.; init. prod. 2,000 bbls
Southern Crude O. P. Co.'s No. 6 Hendricks T-88-N, 1,320 ft. N and W of SE cor. Sec. 28, Blk. 26, School Land ..... Cem. 8¼-in. casing 2,436 ft.; rigging up standard tools.
Southern Crude O. P. Co.'s No. 7 Hendricks T-88-N, 2,320 ft. N and 2,640 ft. W of SE cor. Sec. 28, Blk. 26.. Top lime 2,546 ft.; total depth 2,590 ft.
Southern Crude O. P. Co.'s No. 3 Hendricks T-88-O, 440 ft. S, 330 ft. W of NE cor. Sec. 28, Blk. 26 ..... Top lime 2,376 ft.; top pay 2,690 ft.; flowing 352 bbls. daily; shut down 2,802 ft.
Southern Crude O. P. Co.'s No. 4 Hendricks T-88-O, 1,320 ft. S and W of NE cor. Sec. 28, Blk. 26 ..... Shut down 2,456 ft.; rigging up standard tools.
Southern Crude O. P. Co.'s No. 2 Hendricks T-88-P, Sec. 28, Blk. 26 ..... Drlg. 392 ft.
Southern Crude O. P. Co.'s No. 3 Hendricks T-88-R, 1,320 ft. N and E of SW Sec. 27, Blk. 26 ..... Shut down 2,389 ft.; rigging up standard tools.
Southern Crude O. P. Co.'s No. 8 Hendricks T-88-J, 440 ft. N and 330 ft. W of SE cor. Sec. 9, Blk. B-12 ..... Cem. 8-in. casing 2,590 ft.; rigging up standard tools.
Texas Canadian Oil Co.'s No. 1 Kloh-Rumsey, 1,320 ft. N and E of SW cor. Sec. 35, Blk. 46, T.&P.R.R. Sur.. Shut down 4,011 ft.
Tidal Oil Co.'s No. 1 Scarborough, 330 ft. S and E of NW SE SE Sec. 1, Blk. C-22 ..... Drlg. 1,100 ft.

OIL COMPANIES ASK FOR RADIO LICENSES

WASHINGTON, D. C., May 25.—The case of the Western Radio Telegraph Co., formerly the Petroleum Communications Corp., which has applied for point to point radio licenses, was presented before the Federal Radio Commission this week. Fayette B. Dow and Horace L. Lohnes appeared as counsel for the Western Radio Telegraph Co., with C. M. Jansky, Jr., technical expert.

The capital stock of the Western Radio Telegraph Co. is held by the Phillips, Skelly, Marland and Texas companies, and the organization seeks to supply radio communication throughout the oil fields. It asks for a license as a public utility. Mr. Jansky explained that the Western Radio Telegraph Co. was to take over radio circuits which have been in use by petroleum companies in the middle west. These radio circuits were established privately by the companies due to inadequacy of wire circuits. The new company will also take over the applications for three construction permits filed last fall.

The Humble Oil and Refining Co. has obtained eighteen licenses for portable geophysical transmitters using frequencies of 1,600, 1,652, 1,664, 1,680 and 1,704 kilocycles.

ACCOUNTING COMMITTEE TO MEET IN SEPTEMBER

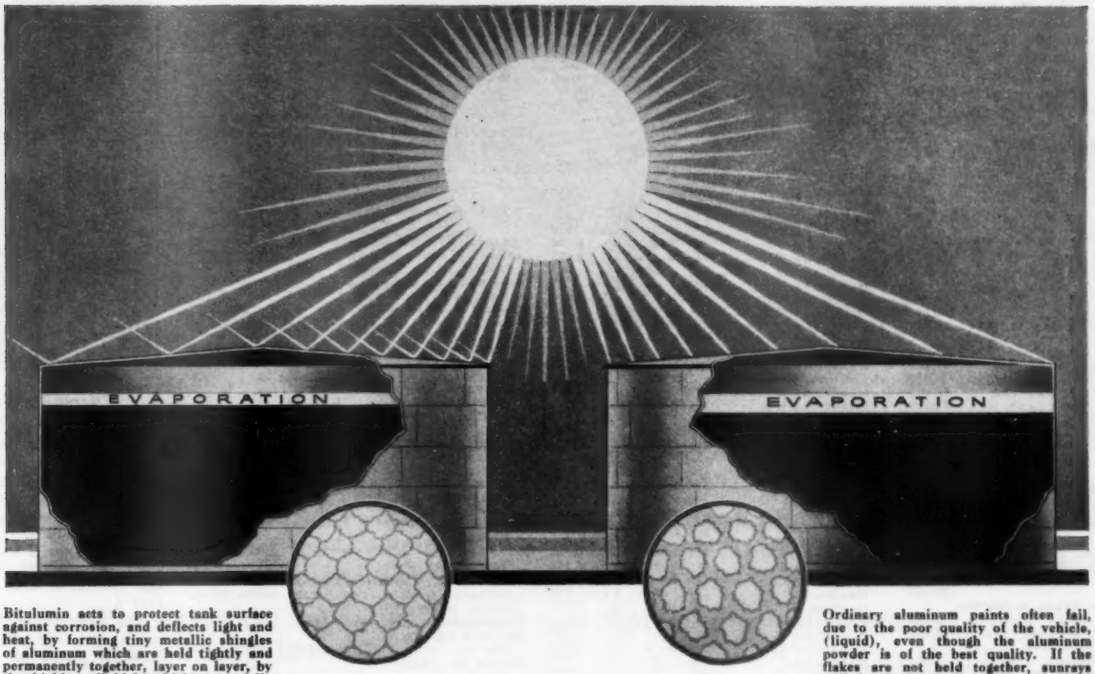
NEW YORK, May 25.—A meeting of the General Committee on Uniform Methods of Oil Accounting will be called in September for final consideration of the work of regional committees on detailed charts of accounts covering fixed (capital) assets and income and expense accounts of oil companies. M. W. Mattison, director of the Division of Taxation and Accounting, American Petroleum Institute, announced today. It is intended to prepare during the current year a separate chart of accounts for each of the major divisions of an integrated company, as disclosed by the general balance sheet, Mr. Mattison said.

The Division has held four regional meetings during the year, and a fifth will be held by the California regional committee within 30 days.

The committees and their chairmen are: Appalachian, F. S. Reitzel, Sun Oil Co., Philadelphia; Eastern, C. B. Ware, Standard Oil Co. of New Jersey, N. Y.; Texas-Louisiana, Gay Carroll, acting chairman, Humble Oil and Refining Co., Houston, Tex.; Mid-Continent, George F. Winters, Tulsa, and California, George H. Forster, Union Oil Co. of California, Los Angeles.

BITULUMIN

A PERMANENT ALUMINUM PAINT FINISH



Bitulumin acts to protect tank surface against corrosion, and deflects light and heat, by forming tiny metallic shingles of aluminum which are held tightly and permanently together, layer on layer, by the highly colloidal vehicle, especially developed for this use by Hill, Hubbell & Company.

Ordinary aluminum paints often fail, due to the poor quality of the vehicle, (liquid), even though the aluminum powder is of the best quality. If the flakes are not held together, sunrays will break down the exposed vehicle, allowing moistures to penetrate.

The DIFFERENCE ... in Evaporation will Pay for it

Bitulumin keeps tank contents cooler by deflecting all but a small percent of the sunrays that can steal as much as 250 gallons per day of the lighter fractions of oil stored in a 55,000 barrel tank of dark color. The savings effected in minimizing evaporation soon pays for the protection that Bitulumin affords, because of its perfect leafing action, illustrated at the lower right.

Bitulumin goes farther, and its metallic coat of armor lasts longer, due to the specially developed inhibitive vehicle, (liquid) which permits the aluminum flakes to float to the surface, layer on layer, and form a metallic sheathing of tiny shingles.

Bitulumin is shipped with the powder and flakes in separate containers, for mixing on the job. The liquid may be purchased separately if desired. Write for illustrated booklet of specifications and uses.

Note how Bitulumin forms tiny shingles when applied to steel tank surfaces, sun and moisture proof. Only a vehicle such as contained in Bitulumin will assure this perfect leafing action. Insist on Bitulumin for the most protection at the least cost.

HILL, HUBBELL & COMPANY

Division

General Paint Corporation

Manufacturers of Highest Grade Oil Industry Paints and Pipe Line Coatings

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WEST TEXAS FIELDS

(Continued from Page 66)

330 feet south and 990 feet east of Section 33, Block B-12, topped the pay at 2,745 feet, topped the lime at 2,711 feet, was drilled to a total depth of 3,009 feet and swabbed 46 bbls. oil, 2 per cent water, in 12 hours. Southern Crude Oil Purchasing Co.'s No. 6 Hendricks T-88-K, located 2,200 feet north and 1,650 feet east of Section 41, Block 26, topped the pay at 2,705 feet, was drilled to a total depth of 2,917 feet and had an initial production of 900 bbls. daily. Their No. 7 Hendricks T-89-J, located 1,540 feet north and 1,320 feet east of Section 9, Block B-12, topped the lime at 2,560 feet, topped the pay at 2,745 feet, was drilled to a total depth of 2,853 feet and had an initial production of 8 bbls. hourly.

Jones County

Phillips Petroleum Co.'s No. 3 Pomeroy had an initial production of 147 bbls. first 24 hours and 157 bbls. second 24 hours at 2,461-83 feet.

Taylor County

Mid-Continent Oil & Gas Co.'s No. 1 Taylor shot 30 quarts at 2,443-60 feet with no results and was shot with 60 quarts at 2,384-2,412 feet and pumped 9 bbls. in 23 hours.

PIPE LINE RUNS
May 1 to 7
Runs Through Trunk Lines

	Last period
Atlantic P. L. Co., Port Arthur, Tex.	38,000
Gulf P. L. Co., to coast via Ranger, Tex.	24,587
Humble P. L. Co., via Comyn, Tex.	48,455
Humble P. L. Co., via Ingleside, Tex.	37,470
Illinois P. L. Co., to Del Rio, Tex.	37,000
Magnolia P. L. Co., to DeLeon, Tex.	31,710
Pasotex P. L. Co., to El Paso, Tex.	8,292
Shell P. L. Co., to Healdton, Okla.	40,088
Shell P. L. Co., to Houston, Tex.	233
Total	265,835
Tank Car Shipments	
Thomas & Brann, Grant City, Tex.	150
Orient, McCamey, Tex.	140
The Texas Company, Crossett, Tex.	793
American Pet. Co., Pyote, Tex.	10,813
Skelly Oil Co., Pecos, Tex.	2,797
Southern Crude from Wickett, Tex.	15,766
Total	30,459
Runs to West Texas Refineries	
Amarillo Prod. Co., Pyote, Tex.	2,273
Bluebonnet Ref. Co., Wickett, Tex.	3,489
Burford Ref. Co., Pecos, Tex.	....
Col-Tex Ref. Co., Colorado, Tex.	7,000
Cosden Ref. Co., Big Spring, Tex.	11,264
Great Western Ref., Big Spring, Tex.	3,117
Humble Oil & Ref. Co., McCamey, Tex.	9,639
Midland Ref. Co., Midland, Tex.	2,355
Tonkawa Ref. Co., Pyote, Tex.	3,022
Valley Ref. Co., Pyote, Tex.	4,921
Big Spring Ref. Co., Big Spring, Tex.	2,110
Total	49,490

Summary

	Previous week	Last period
Pipe line runs through trunk lines	266,303	265,835
Tank car shipments	28,226	30,459
Runs to West Texas Refineries	52,937	49,490
Total daily distribution	347,466	345,784
Total daily production	346,065	359,737
Daily aver. from storage	1,401	13,953

PECOS COUNTY
YATES POOL
Week Ending May 21

Company, lease—	Wells	Bbls.
California Co.:		
Yates—Lease 1	17	7,699
Smith—Lease 1, Sec. 27	3	454
Smith—Lease 1, Sec. 23	7	1,660
Smith—Lease 1, Sec. 21	3	924
Smith—Lease 2	2	149
Smith—Lease 3	12	1,965
Tippett—Lease 1	1	33
Cosby Drilling Co.:		
Smith	1	260
Gulf Prod. Co.:		
All leases	36	12,414
Humble O. & R. Co.:		
Smith-A	10	1,633
Smith-B	5	863
Kirby Pet. Co.:		
Tippett	2	50
Kirby Pet. and Edson:		
Tippett	1	230
Marland Oil Co.:		
Yates-A	6	622
Yates-A-Salvage		2,546
Matador Oil Co.:		
Smith	2	660
Mazda & Savoy:		
Smith	3	731
McCarty Oil Co.:		
Gray	1	off
McMan O. & G. Co.:		
Smith-A	1	1,318
Smith-B	4	1,040
Smith-C	5	891
Tippett	2	291
Richardson	1	52
McMan and Marland:		
Yates	17	4,554
Mid-Kans. and Transcontinental:		
Yates-A	24	13,384
Yates-B	27	6,413
Yates-C	11	6,401
Yates-D	6	6,943
Yates-E	1	96
Yates-F	4	699
Yates-G	4	1,091
Yates-H	8	5,372
Smith	4	1,224
Smith	18	2,558
Yates C-3	1	651
Grayburg Oil Co.:		
Pecos River Bed	6	430
Pecos Valley Oil Co.:		
Fee Sec. 22, Blk. 26	2	72
Phillips Pet. Co.:		
Monroe	1	66
Ramsey	1	219
Red Bank Oil Co.:		
Smith	5	530
Shell Pet. Co.:		
Tippett	11	2,291
Smith	9	1,021
Smith-B	1	515
Smith-D	3	545
Smith-E	1	20
Simms Oil Co.:		
Smith	7	5,636
Skelly Oil Co.:		
Tippett	1	85
Total Yates Pool	298	97,401

WINKLER COUNTY
HENDRICKS POOL
Week Ending May 21, 1929

Company, farm—	Sec.	Blk.	Wells	Prod.
Amerada Pet. Corp.:				
Cowden	3	B-12	3	810
Atlantic O. P. Co.:				
Hendricks-A	34	B- 5	8	1,437
Hendricks-B	44	26	4	949
Hendricks-D	29	B- 5	8	2,022
Hendricks-E	41	B- 5	7	2,619
Hendricks-G	46	26	7	801
Hendricks-H	30	B- 5	1	11
Atlantic & Collett:				
Hendricks-F	40	26	13	1,931
Bankers Prod. Co.:				
Hendricks	30	B- 5	1	50
California Co.:				
Hendricks	29	B- 5	8	1,105
Cranfill & Reynolds:				
Hendricks-A	28	B- 5	2	174
Hendricks-B	35	B- 5	1	83
Hendricks-C	33	26	2	175
Hendricks-E	33	26	2	409
Cranfill & Texon:				
Hutchings	47	26	1	70
Culberson Brothers:				
Hendricks	40	B- 5	1	75
Eastland Oil Co.:				
Hendricks	35	B- 5	2	405
Hendricks-B	35	B- 5	1	209
Gulf Prod. Co.:				
Hendricks-A	34	B- 5	13	4,021
Hendricks-B	45	26	11	7,748
Hendricks-C	40	B- 5	6	2,020
Hendricks	44	26	2	666
Cowden	3	B-12	3	1,851
Humble Oil & Ref. Co.:				
Hendricks-A	34	B- 5	17	5,324
Hendricks-B	29	B- 5	6	1,102
Hendricks-C	32	26	8	787
Hendricks-B	47	26	7	801
Hendricks-C	10	B-12	8	5,148
Independent Oil & Gas:				
Hendricks-A	34	B- 5	8	1,124
Howe-B	44	26	3	444
McCabe	36	B- 5	2	285
Hendricks	42	B- 5	1	11
Vardeman-B	41	B- 5	7	771
Magnolia Pet. Co.:				
Hendricks	29	B- 5	8	622
Marland Oil Co.:				
Hendricks	33	26	4	995
Hendricks	29	26	2	120
Hendricks-B	34	26	2	199
May Prod. Co.:				
Hendricks	34	26	1	72
American Maracaibo:				
Hendricks-A	28	B- 5	1	36
Hendricks-B	28	B- 5	1	155
Murchison & Cranfill:				
Hendricks-A	35	B- 5	3	1,108
Hendricks-B	35	B- 5	3	669
Hendricks-C	35	B- 5	1	3
Hendricks-H	35	26	1	1,461
Hendricks-I	47	26	2	603
Prairie Oil & Gas Co.:				
Hendricks	40	26	6	1,514
Cowden	3	B-12	6	3,762
Pure Oil Co. (Lion):				
Hendricks	41	B- 5	11	1,808
Hendricks-B	34	B- 5	13	4,026
Hendricks-C	45	26	14	8,364
Hendricks-D	44	26	1	211
Republic Prod. Co.:				
Hendricks-A	45	26	13	1,671
Hendricks-B	41	B- 5	5	241
Shell Pet. Co.:				
Hendricks-A	45	26	6	2,015
Hendricks-B	29	B- 5	6	1,290
Hendricks-C	29	B- 5	8	1,445
Hendricks-D	41	B- 5	6	455
Hendricks-E	49	B- 5	3	769
Hendricks-F	46	26	8	1,961
Hendricks-G	39	26	1	75
Shell-Texas Co.:				
Cowden-A	3	B-12	6	1,268
Hendricks	45	26	6	1,244
Hendricks-A	29	B- 5	11	2,565
Hendricks-B	40	26	6	706
Hendricks-C	40	26	6	1,758
Hendricks-D	40	26	6	587
Hendricks-E	39	26	4	517
Skelly Oil Co.:				
Hendricks	40	26	12	6,399
Hendricks-B	39	26	2	23
Hendricks-C	39	26	1	579
Southern Crude Oil Purchasing Co.:				
T-67 Hendricks-A	42	B- 5	3	139
T-67 Hendricks 3-A	4	B-12	4	469
T-67 Hendricks-B	44	26	5	634
T-67 Hendricks 3-B	33	26	5	516
T-67 Hendricks-C	33	B- 5	5	760
T-67 Hendricks 2-D	28	26	4	813
T-67 Hendricks-E	42	B- 5	4	119
T-67 Hendricks-F	33	B- 5	4	738
T-68 Hendricks 3-A	35	B- 5	5	155
T-68 Hendricks-B	46	26	2	125
T-88 Hendricks-A	44	26	6	815
T-88 Hendricks-B	4	B-12	4	705
T-88 Hendricks-C	29	B- 5	7	1,308
T-88 Hendricks-D	4	B-12	6	3,095
T-88 Hendricks-H	28	B- 5	6	1,245
T-88 Hendricks-I	30	B- 5	7	1,261
T-88 Hendricks-J	30	B- 5	5	883
T-88 Hendricks-K	41	26	5	1,478
T-88 Hendricks-L	4	B-12	4	905
T-88 Hendricks-M	33	26	30	12,029
T-88 Hendricks-N	28	26	5	1,596
T-88 Hendricks-O	28	26	2	712
T-88 Hendricks-P	28	26	1	197
T-88 Hendricks-Q	27	26	2	748
T-88 Hendricks-R	27	26	2	878
T-88 Hendricks-S	34	26	4	1,256
T-88 Hendricks-T	34	26	7	592
T-88 Hendricks-U	41	26	7	1,504
T-88 Hendricks-V	29	26	1	79
T-88 Hendricks-W	5	B-12	1	279
T-88 Hendricks-CX	21	26	1	463
T-89 Hendricks-A	35	B- 5	3	285
T-89 Hendricks-B	35	B- 5	2	598
T-89 Hendricks-C	35	B- 5	3	615
T-89 Hendricks-D	35	B- 5	1	257
T-89 Hendricks-E	40	B- 5	3	182
T-89 Hendricks-F	40	B- 5	2	253
T-89 Hendricks-H	46	26	1	283
T-89 Hendricks-I	10	B-12	2	150
T-89 Hendricks-J	9	B-12	4	2,356
T-90 Hutchings	47	26	1	267
Texon Oil & Land Co.:				
Hendricks-A	41	B- 5	6	613
Hendricks-B	45	B- 5	6	1,419
Winkler O. P. Co.:				
Hendricks	33	26	1	67
Total Hendricks Pool			559	140,569

Leck Area

Company, farm—	Sec.	Blk.	Wells	Prod.
Atlantic-Kessler & Logan:				
Leck	3	74	2	764
Amerada Pet. Corp.:				
Leck	3	74	2	611
Empire G. & F. Co.:				
Daugherty	3	74	3	759
Magnolia Pet. Corp.:				
Scarborough	1	C-22	1	168
Gulf Prod. Co.:				
Scarborough	1	C-22	1	75
Shell-Llano Oil Co.:				
Scarborough	1	C-22	3	164
Shell-Danciger:				
Leck	3	74	2	166
Skelly Oil Co.:				
Leck	3	74	1	447
Prairie Oil & Gas Co.:				
Leck	16	74	1	245
Daugherty	3	74	1	310
Scarborough	1	C-22	1	0
Warner-Quinlan:				
Leck	3	74	1	357
Total Leck Pool			19	4,066

O'Brien Pool

Company, farm—	Sec.	Blk.	Wells	Prod.
Arizona Mining Co.:				
Hendricks	10	B-12	1	13
Marland Oil Co.:				
Morton	10	B-12	2	289
Wentz Oil Corp.:				
Morton	10	B-12	1	447
Simms Oil Co.:				
Sealy	50	F	1	26
Richardson et al:				
Stockton	50	F	1	226
Total O'Brien Pool			6	1,001
Grand total Winkler Pool			584	145,636

OIL FIELD DEVELOPMENT BUILDING COMMUNITY

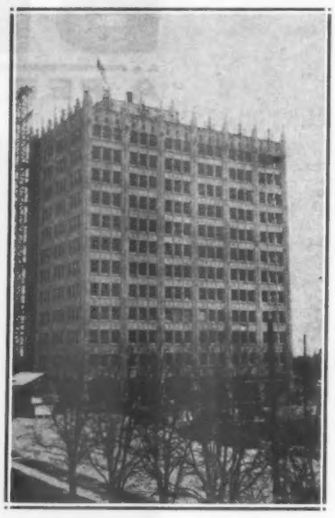
CHATHAM, Ontario, May 25—Steadily increasing production and widespread new drilling activities have developed a considerable community in connection with the Turner Valley Field in southern Alberta. Where, 10 years ago, a few derricks and a few houses represented the oil camp, now it is claimed some 2,000 people are dependent on the growing oil industry.

Several years ago the townsite of Turner Valley was created in the original central field. Recent development has resulted in a rapidly increasing population of oil field workers in the southern end, some miles south of the Turner Valley township. An enterprising rancher, F. J. Hartell, has offered to donate a site for a post office and store. At present oil men travel to High River or Black Diamond for their mail, while the nearest store is at Black Diamond, 6 miles distant. Some 300 men are employed in the south end, and this number will probably be doubled when the 1929 development program gets fairly under way.

Water, gas and electric light services in the valley are handled largely by Imperial Oil, Ltd.. Imperial Oil, Ltd., at present has a direct telephone line between Calgary and the field, and Solloway, Mills & Co. are opening a direct line. Oil operators have raised $25,000 which will be supplemented by a similar sum from the province for the construction of a good road from Okotoks to the Turner Valley.

MIDLAND'S SKYSCRAPER DOMINATES THE PLAINS

MIDLAND, Tex., May 25.—Monotonous levelness of the plains in the West Texas Permian basin has been broken by a man-made projection. The broad expance of flat country about Midland is now looking up to a 12-story office



Hogan Petroleum Building.

building erected for use of oil companies operating in the West Texas Permian basin and Eastern New Mexico.

This new building erected specifically for oil companies by T. S. Hogan, oil man, will be opened in June. A few companies will have their quarters completed by June 1 and the entire building will be completed by July 1. Midland will celebrate the formal opening on July 4.

The Scharbauer Hotel is adding 100 rooms with 100 baths to accomodate the expected influx of oil men. The hotel now has 150 rooms. Over 400 new houses have been constructed in the past two years as a result of Midland's expansion as an oil city. The town now has every modern city convenience, made possible by oil development.

WISCONSIN PETROLEUM MEETING

CHICAGO, May 25.—At the annual meeting of the Wisconsin Petroleum Association, the officers were all re-elected as follows: president, J. M. McLaughlin, Milwaukee; J. F. Hansen, vice president; H. A. Rohde, West Allis, secretary; R. E. Andrews, Madison, treasurer. The following directors were elected: T. A. Clark, W. J. Zust, A. C. Larson, M. G. Peeters. It was decided to change the meetings from monthly to quarterly.

There was a good attendance of jobbers and several valuable addresses were made at the meeting at Green Bay on Wednesday, May 15. F. L. Henderson of the LaSalle Extension University, Chicago, spoke on merchandising and salesmanship. James V. O'Neill, supervising engineer of the Travellers Insurance Co., Milwaukee, spoke on accident insurance, discussing the causes of accidents, their cost to the industry and what makes a major injury. His talk was particularly directed to those who carried accident or public compensation insurance.

"FLO" SNIVELY DEAD

CHATHAM, Ontario, May 25.—Florentine L. Snively, better known as "Flo" Snively, died recently at Hamilton, Ontario, aged 64. Born at Wyoming, Ontario, in the early oil boom days, Mr. Snively drilled in the Canadian fields, and later in Burma, Sumatra and Java, on his return establishing himself at Dunnville, Ontario, as a drilling contractor, specializing in deep drilling.

SAFETY

Why buy a *perfect* product—and take a chance on its being damaged enroute to you?

Why spend hours of costly time cleaning threads on pipe and couplings —rethreading too—when all this waste can be eliminated positively, by specifying Colona Thread Protectors?

Put on at the mill—they assure you that the pipe will reach you in perfect condition.

Every maker of pipe can give you this added service—insist on Colona and save on your labor.

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Patented

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PIPE THREAD PROTECTORS

HOW CAN YOU TELL DEPENDABLE PIPE?

PRODUCTS
Tubing
Casing
Line and
Rotary Drill Pipe

You cannot judge pipe by looking at it. All steel pipe looks about the same. And you cannot afford to inspect and analyze every piece of pipe you buy or install.

But you can make sure that it's Republic Steel Pipe. Then you have the assurance of strength, uniformity and durability. Then you know that every length has been made to conform to rigid specifications . . . has passed severe tests and inspections before it is ever placed on the market. Then you can not only expect, but you can be certain of satisfactory pipe service.

The name Republic on steel pipe is a positive answer to the question of dependability . . . insurance of quality piping in your oil or gas lines.

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Birmingham, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Dallas, Denver, Detroit, El Paso, Los Angeles, New York, Philadelphia, Pittsburgh, San Francisco, Seattle, St. Louis

REPUBLIC
IRON & STEEL CO. YOUNGSTOWN O.
PIPE & CASING

SEMINOLE AREA PRODUCED 400,000,000 BBLS. OF CRUDE

(Continued from Page 108)

Company, lease—	S. T. R.	wells	recovery
Urbansky	19-8-5	1	1,232
Wiley	8-8-5	4	82,061
Sinclair:			
Bellare	19-8-5	8	266,522
Calvin, Eliza	7-8-5	1	11,808
Calvin, Lewis	6-8-5	1	246
Skelly-Margay:			
Lingerfelt	18-8-5	2	110,691
Slick, et al:			
Villinens	20-8-5	1	2,212
Sun Ray-Cal Cul:			
Davis	19-8-5	1	1,596
Texas:			
Calvin	7-8-5	4	17,941
Tidal:			
Dunn	12-8-4	1	77
Everetts	18-8-5	1	15,890
Smith	8-8-5	1	3,121
Twin State:			
Calvin	7-8-5	2	4,984
Wilcox:			
Smith	8-8-5	2	39,145
Total Maud		64	2,039,953

MISSION

Total Recovery of Leases to March 1, 1929

Company, lease—	S. T. R.	No. prod. wells	Total recovery
Amerada:			
Rice	5-8-6	1	5,285
Carter:			
Fuswa	18-8-6	2	16,442
Micco	8-8-6	2	12,688
Carter & Denver-P.&R.:			
Melissa	9-8-6	1	7,035
Darby:			
Judy	1-8-5	1	1,631
Gypsy:			
Baby	6-8-6	1	3,419
Barkus "N"	6-8-6	6	37,970
Barkus "S"	7-8-6	1	987
Dosar	7-8-6	3	96,849
Hardy	7-8-6	4	1,206
Harjoche	7-8-6	3	7,077
Micco, L.	8-8-6	2	1,771
Micco, S.	8-8-6	1	259
Mission	5-8-6	5	21,586
Mosar	1-8-5	3	8,484
Independent:			
Lawson	1-8-5	2	22,197
Independent-Kistler:			
Payne	7-8-6	2	11,578
Marland:			
Maines	7-8-6	2	24,234
McMahon:			
Harjo	7-8-6	1	1,715
Mid-Kansas:			
Moore	7-8-6	1	12,732
Minnehoma:			
Neal	7-8-6	2	9,940
Pine, W. B.:			
Harjo	6-8-6	1	2,919
Prairie:			
Melton	6-8-6	2	952
Micco	5-8-6	1	4,151
Prairie & Gypsy:			
Owens	18-8-6	1	2,289
Shaffer:			
Weaver	12-8-5	1	6,426
Shell & Marland:			
Herndon	7-8-6	1	8,814
Shell & Papoose:			
Maines	7-8-6	4	17,644
Sinclair:			
Hardy	7-8-6	3	20,042
Judy	1-8-5	1	3,969
Slick:			
Crain	7-8-6	1	203
Tidal:			
Nellie	12-8-5	2	12,936
Twin State:			
Hayes	8-8-6	2	28,216
Judy	6-8-6	2	11,970
Total Mission		69	425,945

CARR CITY POOL

Total Recovery of Leases to March 1, 1929

Company, lease—	S. T. R.	No. prod. wells	Total recovery
Barnsdall:			
Coker	11-8-5	3	152,895
Fife	14-8-5	2	158,244
Empire:			
Cluck	11-8-5	2	14,295
Gypsy:			
Coker	11-8-5	1	14,897
I.T.I.O.:			
Simpson	10-8-5	1	17,169
State	16-8-5	1	2,825
Tully	10-8-5	1	1,015
Magnolia:			
Killingsworth	14-8-5	1	21
Prairie:			
Billington	11-8-5	5	98,100
Mitchell	15-8-5	1	7,168
Sinclair:			
Bean	11-8-5	1	214
Harjo	11-8-5	3	109,895
Total Carr City		21	576,738

SEARIGHT

Total Recovery of Leases to March 1, 1929

Company, lease—	S. T. R.	No. prod. wells	Total recovery
Amerada:			
Johnson	4- 9-6	1	31,000
Strothers	3	2	618,601
Barnsdall:			
R. Jackson	5	1	7,102
Carter:			
Com.-Strothers	11	1	21,325
Davis	4	6	2,246,316
Frazier	3	6	3,025,365
Johnson	3	D&A	7,208
Kiker	2	1	25,066
Mandler	3	2	14,306
Scott	26-10-6	1	21,222
Stewart	34	D&A	629,360
Gypsy:			
Cudjo	4	3	584,961
Magnolia:			
Varnum	32-10-6	1	5,609
Mid-Continent:			
Grayson	34-10-6	5	1,837,539
Salooche	33	6	766,482
Nevins	32	3	235,956
Pine:			
Lula	4	1	17,041
Prairie:			
Cannon	33-10-6	1	5,763
J. Carter	10- 9-6	1	37,037
Houck	33-10-6	1	4,543
Kincaid	33	2	2,139,797
Varnum	5- 9-6	D&A	1,341
Welmer	33-10-6	1	4,074
Wheeler	22	D&A	7,658
Pure:			
Aldridge	3- 9-6	4	1,849,813
Roxana:			
Strothers	3- 9-6	4	794,074
Searight:			
Youngblood	33-10-6	D&A	544,728
Sinclair:			
Polly	3- 9-6	4	1,328,319
Sun Ray:			
Cluck	4- 9-6	D&A	789
Superior:			
Varnum	4- 9-6	1	21,992
Texas:			
Fleet	4- 9-6	1	15,148
Twin State:			
Varnum	4- 9-6	2	365,592
Wilcox:			
Cluck	4- 9-6	7	1,618,442
Total Searight		69	18,836,570

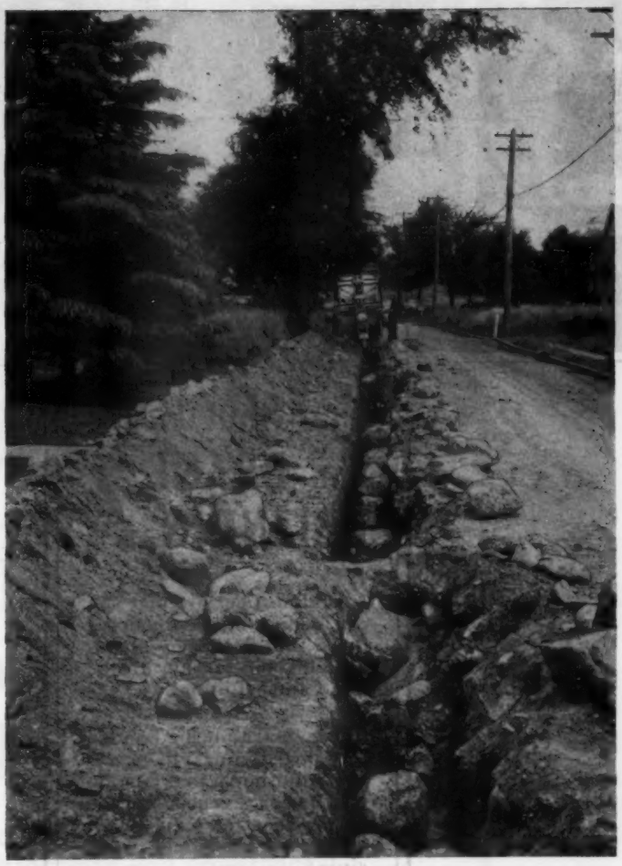
BOWLEGS

Total Recovery of Leases to March 1, 1929

Company, lease—	S. T. R.	No. prod. wells	Total recovery
Amerada:			
Roscoe	15- 8-6	7	2,793,003
Atlantic:			
Baker	10	4	653,940
Fleet	23	3	529,493
Grayson	13	4	730,294
A. Jones	16	2	113,124
C. Jones	9	1	242,771
Barnsdall:			
McNac	28	1	22,345
Murrow	11	4	561,497
Carter:			
Burden	23	2	150,278
Bowlegs	15	4	1,274,907
Harjoche	14	6	913,757
Hilly	23	3	591,775
Jones	11	4	754,892
McGrisey	21	D&A	8,728
Melesia	9	D&A	141,461
Walker	15	4	829,636
Wise	23	11	3,605,788
Dixie:			
Cully (Lizzie)	11	1	28,593
Empire:			
Lacey	14	6	1,113,257
Wise	23	2	401,445
Gypsy:			
Bradley	9	1	5,370
Bowlegs	22	1	126,502
R. Cumsey	10	4	633,957
Grayson	13	4	547,697
Harjoche	10	3	584,155
Henderson	13	D&A	6,013
Jones	11	1	99,510
Walker	15	7	1,721,694
Wise	23	2	109,751
Independent:			
Coker	21	D&A	91,503
I.T.I.O.:			
Barnett	24	2	324,994
Barnett-B	23	1	68,427
Billington	22	4	480,952
Bowlegs A & B	22	9	1,192,222
Burden	23	D&A	1,158
Davis	13	4	1,566,134
Faye	13	9	1,444,310
Goforth	15	12	2,003,789
Livingston A&B	15	10	4,269,078
Lizzie	11	3	261,043
Williams	12	1	32,129
Walker	15	8	1,613,903
Wilmont	15	4	80,083
Work	24	1	135,198
Youngblood	24	2	439,834
Magnolia:			
D. F. Davis	13	3	257,540
M. Davis	13	1	110,886
Hammond	10	8	293,905
Rhodes	12	5	1,149,592
Van Buskirk	9	3	172,112
McCullough:			
Bowlegs	22	2	235,393
Mid-Continent:			
Baker	10- 8-6	4	1,268,906
Bowlegs	22	1	117,253
Hulka (Work)	24	D&A	35,081
Smith	12	6	285,354
Minnehoma:			
Bowlegs	15	4	509,055
Prairie:			
Gahagan	23	3	615,062
Harber	10	8	2,328,096
Jones	11	4	379,896
Templeton	12	5	1,466,089
Whitney	23	4	381,225
Pure:			
Reed	14	14	4,236,326
Strothers-D	11&14	4	358,050
Strothers-F	10	7	906,611
Strothers-E	16	D&A	1,484
Roxana:			
Taylor	16	5	741,185
Shaffer:			
Lacy	14	3	437,585
Sinclair:			
Adams	22	D&A	8,031
Bowlegs	22	D&A	63,635
Gumsey	10	4	1,532,670
Ellen	11	6	1,053,280
Harjo	14	3	1,242,720

(Continued on next page)

GUTS!



GUTS! That's what it takes to stand the relentless speed of pipe line work. And that's what you get when you put a Parsons on the job.

Just take a glance at the stuff that's being dug by the Parsons 21. Any machine that can plow through eleven miles of such digging certainly has the guts to put your jobs through on schedule, regardless of the punishment you give the machine.

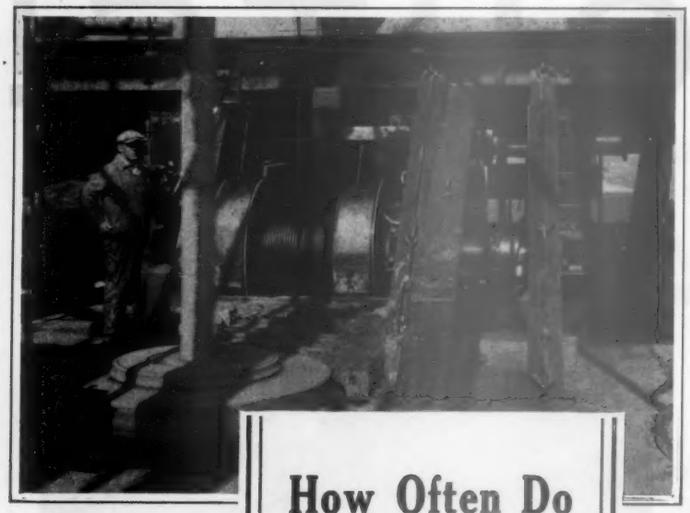
Reasons? Plenty of 'em. Send the coupon and judge for yourself.

The Parsons Company, Newton, Iowa
Tulsa Office—805 Mayo Bldg.
Division of the National Equipment Corporation

PARSONS

A complete line of trenchers and backfillers

THE PARSONS COMPANY, Newton, Iowa. OG 530
Please send complete information on Parsons machines to handle trench about _____ inches wide and _____ feet deep.
_____
_____



How Often Do You Shut Down for BRAKE RELINING?

It is almost certain that you can reduce the number of those shut-downs by standardizing on Ferodo Brake and Clutch Linings.

These extra-tough, bonded asbestos Linings have repeatedly shown that they do last longer, even under the hardest sort of punishment—the sort oil-field work gives.

Furthermore, Ferodo Linings resist water, oil and grease to an astonishing degree; they do not spark or burn, glaze or slip; and they always give smooth, sure braking at any speed or temperature.

It is a real economy to use Ferodo Linings.

[Also: Ask for samples of Permanite — the original highly-compressed sheet packing.]

FERODO AND ASBESTOS
Incorporated
Factory and General Offices:
New Brunswick, New Jersey

K. 5-30-29

FERODO
REGISTERED
FRICTION LINING

Company, lease—	S.	T.	R.	wells	recovery
C. Jones	9			7	2,095,974
M. Taylor	10			4	1,500,178
W. Taylor	10			3	367,336
Sinclair et al:					
Walker	22			4	1,050,061
Slick:					
Jones	3			1	60,073
Texas:					
Reed	14			11	2,258,985
Tidal:					
Grayson	13			4	420,161
Harjoche	10			6	1,162,398
Twin State:					
Jones	11			D&A	179,657
Total Bowlegs				309	62,599,825

SEMINOLE

Total Recovery of Leases to March 1, 1929

Company, lease—	S.	T.	R.	No. prod. wells	Total recovery
Amerada:					
Fixico	23-	9-	6	3	1,785,629
Amerada, et al:					
Killingsworth	23			4	834,624
Rentie	23			3	975,167
Atlantic:					
N. Cudjo	35			3	788,835
Atlantic & Independent:					
J. Cudjo	35			D&A	19,419
Barnsdall:					
M. Carter	24			7	2,835,098
Henry	14			2	315,539
Jones	34			4	1,444,457
Carter:					
B. Carter	24			2	239,559
F. Carter	23			3	494,939
J. Carter	24			D&A	184,076
Creamer	34			2	13,689
R. Cudjo	35			4	867,580
W. Cudjo	34			1	131,225
Gilliland	27			1	296,276
W. E. Grisso	23			4	1,436,911
Jackson	27			D&A	3,194
M. Grisso	15			1	104,183
F.G.Killingsworth	14			4	867,167
M. Killingsworth	23			12	6,006,174
Knappenburger	13			1	458,668
Lukes	27			5	1,581,912
Pounder	34			2	53,923
Simpson	35			2	121,034
Stro.hers	34			4	1,314,331
Vierson	23			1	343,469
Empire:					
Gross	25			2	238,921
Wilson	34			2	657,007
Gypsy:					
Butler	35			4	720,737
J. Carter	24			8	1,205,835
R. Cudjo	34			4	337,863
Fixico	26			7	294,887
Harjo	25			3	734,966
Wolfe	26			5	1,444,080
C. Frazee	36			D&A	693
Independent:					
P. Fixico	23			3	315,792
Harjo	25			2	179,214
Independent et al:					
Butler	35			3	1,170,324
Independent-Garland:					
D. Fixico	28			5	2,282,366
Independent-Inter Ocean:					
Jones	26			4	842,650
I.T.I.O.:					
Allen	25			2	116,602
I.T.I.O. et al:					
Bowlegs	26			12	3,132,120
Fleet	25			D&A	5,292
Goodin	23			3	329,304
Harjo	23			3	387,332
James	24			2	833,253
Reed	24			1	46,724
Kingwood-Roxana:					
Harjo	22			3	1,035,578
Magnolia:					
Boren	2-	8-	6	1	17,045
Franks	25-	9-	6	3	838,968
Mid-Continent:					
Rentie	14-	9-	6	8	1,412,572
Tayecha	24			7	1,065,911
Mid-Kansas:					
Jacksey	3-	8-	6	D&A	3,053
Pressley	3			D&A	42,142
Wilkins	25-	9-	6	D&A	199,209
Phillips:					
Strothers	27			2	138,413
Prairie:					
Gross	25			5	107,117
Mason	36			1	177,559
Spencer	13			1	12,840
Strothers	27			8	2,551,883
Pure:					
Strothers	26			17	6,628,955
Strothers-B	36			4	1,359,010
Strothers-C	34			1	189,612
Roxana:					
Harber	22			2	202,591
Lasley	22			2	60,976
Sinclair:					
Carter	13			2	25,934
Cudjo-A	35			6	1,962,203
Cudjo-B	35			4	1,902,563
Dicey	22			2	650,451
Sinclair et al:					
Fixico	23			4	1,051,783
Slick, T. B.:					
Born	35			D&A	413
Cudjo	35			3	760,925
Franks	35			6	2,796,301
Giblet	35			3	1,394,328
Tiger	1-	8-	6	1	29,107
Superior:					
Cudjo	35-	9-	6	4	1,428,410
Texas:					
Mayhue	14			1	201,863
Strothers	2-	8-	6	1	63,073
Tidal:					
J. Carter	24-	9-	6	4	948,547
Fixico	26			7	2,118,813
D. Harjo	25			1	414,667
T. Harjo	23			3	195,775
Mahardy	24			D&A	1,075,002
Tayecha	25			D&A	635,820
Turman:					
Cudjo	35			4	1,086,213
Grisso	35			1	327,339
Jones	34			4	1,343,098
Total Seminole				275	75,249,262

ST. LOUIS POOL

Total Recovery to March 1, 1929

Company, lease—	S.	T.	R.	Production
Atlantic & Darby:				
Standridge	10-	7-	4	57,174
Barnsdall:				
Stahl	30-	7-	5	220,086
Blackwell:				
Cherry	25-	7-	4	78,530
Lewis	24-	7-	4	8,732
Darby:				
Harber	23-	7-	4	28,574
Youngblood	16-	7-	4	4,616
Empire:				
State	36-	7-	4	25,034
Gypsy:				
Bruno	25-	7-	4	30,135
Collins	25-	7-	4	95,824
Dodson	26-	7-	4	69,203
Johnson	29-	7-	4	5,477
LeClair	23-	7-	4	295,836
Rosemond	26-	7-	4	20,614
Gypsy & Sinclair:				
Stahl	30-	7-	5	1,921,786
Independent:				
Blandin	30-	7-	5	182,511
Youts	19-	7-	5	4,351,116
Independent-Darby:				
Pillar	15-	7-	4	63,467
Carson	23-	7-	4	10,458
Brown	14-	7-	4	70,941
Freid	23-	7-	4	79,839
Davis	15-	7-	4	18,833
LeClair	23-	7-	4	98,048
Wallace	14-	7-	4	122,468
Jordon	10-	7-	4	12,496
Independent et al:				
Ma.hews	30-	7-	5	10,134
Standridge	14-	7-	4	206,920
Hanby	14-	7-	4	47,625
I.T.I.O.:				
Weams	21-	7-	5	14,635
Inter-Ocean:				
Coley	24-	7-	4	14,116
McGee	23-	7-	4	162,864
Magnolia:				
Banta	14-	7-	4	22,285
Cherry-A	26-	7-	4	206,843
Billington	11-	7-	4	4,525
Cherry-B	26-	7-	4	46,191
Brandenburg	18-	7-	5	5,685
Clour	11-	7-	4	16,722
Bullock	18-	7-	5	2,352
Fyke, George-A	20-	7-	5	515,139
C. E. Davis	18-	7-	5	7,111
Fyke, George-B	20-	7-	5	16,849
Frank Davis	15-	7-	4	29,773
Fyke Tull-A	20-	7-	5	29,891
Engle	34-	7-	4	8,350
Fyke, Tull-B	20-	7-	5	377,081
L. L. Fyke	20-	7-	5	16,861
Fyke, Tull-C	20-	7-	5	3,872
Fyke, Tull-D	29-	7-	5	74,519
Fyke, Tull-E	28-	7-	5	336
Guinn	20-	7-	5	2,117
B. M. Green	13-	7-	4	5,665
Hembree	19-	7-	5	1,813,871
Lula Green	13-	7-	4	8,917
Nicholas	31-	7-	5	1,500
Harden	12-	7-	4	6,302
Ship-She-Wano	19-	7-	5	30,834
J. M. Robbins	15-	7-	4	407,221
Risenhoover	14-	7-	4	31,862
F. Singleterry	23-	7-	4	46,171
T. C. Singleterry	14-	7-	4	56,086
Mull	15-	7-	4	105,908
C. D. Hathcocke	11-	7-	4	37,145
Lee Hathcocke	11-	7-	4	93,809
S. A. Wilbern	24-	7-	4	66,014
J. J. Harper	19-	7-	5	8,614
Chas. Youts	2-	7-	5	94,411
James Harper	19-	7-	5	3,085
C. A. Youts	19-	7-	5	146,117
C. E. Lewis	15-	7-	4	84,184
H. E. Youts	20-	7-	5	1,134,078
Nona	11-	7-	4	66,657
McCulloch:				
Bruno	25-	7-	4	217,917
Smith	25-	7-	4	233,826
Mid-Continent:				
Quinn	20-	7-	5	196,148
Mid-Kansas:				
Lunay	30-	7-	5	56,379
Getzelmann	25-	7-	4	586,155
Phillips:				
Cherry	25-	7-	4	61,714
Lydick	24-	7-	4	2,491
Stahl	30-	7-	5	563,119
Prairie:				
Desmond	25-	7-	4	365,915
Ellison	25-	7-	4	158,912
Gammon	30-	7-	5	895,416
Wolf	29-	7-	5	449,995
Pure:				
Dodson	26-	7-	4	10,658
Thrailkill	19-	7-	5	4,750
Thomas	26-	7-	4	1,086,001
Shaffer:				
Cherry	23-	7-	4	238,100
Tolon	30-	7-	5	99,876
Shell:				
Smith	21-	7-	5	16,252
Shell:				
Stahl	30-	7-	5	12,126
Youts	28-	7-	5	6,076
Sinclair:				
Blandin	24-	7-	4	715,142
Bruno	26-	7-	4	154,403
Coley	24-	7-	4	32,755
M-Qva-Kah	11-	7-	4	6,371
Gilbreath	25-	7-	4	50,365
Nadash	29-	7-	5	125,930
Neeley	25-	7-	4	340,139
Neeley-B	25-	7-	4	49,362
O'Kitchee	19-	7-	5	177,251
Superior:				
Candle	24-	7-	4	21,465
T. B. Slick:				
Davis	18-	7-	5	305,495
Hembree	19-	7-	5	3,598,164
Linn	30-	7-	5	208,017

(Continued on next page)

Your Billboards on WHEELS!

Your tank cars, properly painted, are your billboards on wheels! As they roll along the highways and crossroads of America they carry your name to thousands of your customers and prospects.... Keep them brightly painted with Degraco Tank Car Paints and they will give you a good return on your investment—both from the standpoints of protection and advertising value.

DEGRACO PAINTS
All Colors for All Purposes

The use of quality ingredients mixed under expert supervision combine to make Degraco Tank Car Paints resist weather, temperature changes, locomotive gases, fumes, cinder blasts, spillage and the strains to which rolling stock is constantly subjected.

Note: The Detroit Graphite Company maintains a cooperative Engineering Staff to aid in the selection and application of the paint best suited to your needs.

Detroit Graphite Company

Branch Offices and Warehouse Stocks in All Principal Centers.

Detroit, U. S. A.

Manufactured in Canada by Dominion Paint Works, Ltd., Walkerville.

Company, lease—	S.	T.	R.	wells	recovery
Smith				30-7-5	6,571
Younts				19-7-5	426,978
Texas:					
Cherry				25-7-4	791,041
Zoller				30-7-5	7,469
Tidal Oil Co.:					
Smith				26-7-4	20,503
Westheimer & Daube:					
Fried				24-7-4	446,983
Westheimer & Daube-Gypsy:					
McGee				23-7-4	356,340
Garrett				23-7-4	13,154
Wilcox:					
Wyatt				10-7-4	5,719
Total St. Louis					27,084,784

EFFECT OF AGITATION WITH GAS OR AIR

(Continued from Page 86)

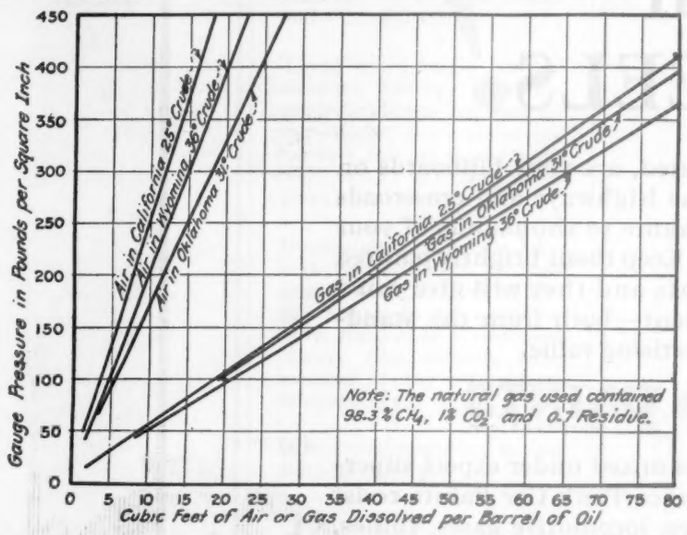
removed from the oil or dissolved in the oil, depends entirely upon the partial vapor pressures of the individual hydrocarbons in oil and gas, that is, a relatively dry gas when used to flow a well producing a high gasoline content oil will remove gasoline from the oil and the quantity removed will depend upon the gasoline content of the oil and gas. A low gasoline content oil, and consequently a low gravity oil, will absorb some gasoline and probably some permanent gases and will be increased in gravity, the amount depending upon the character of the gas.

Air will remove the same amount of gasoline from oil as a gas absolutely denuded of gasoline vapors, but since it is almost impossible to find such a denuded gas in any high gravity oil field, it happens that air almost always lowers the gravity and gasoline content of oil considerably more than gas, regardless of whether the gas is from an absorption plant, compression plant or extraneous sand, provided the air is not being recycled. Even with low gravity oil we could not expect an increase in gravity

BEFORE-AND-AFTER GAS LIFT DATA ON CALIFORNIA WELLS

	Former Production						Gas Lift						
Well No.	bbls. oil	grav. A.P.I.	wet gas Mcf.	gas factor cu. ft.	G.P.M.	100% gaso. gals.	bbls. oil	grav. A.P.I.	nat. gas Mcf.	gas factor cu. ft.	wet gas Mcf.	G.P.M.	100% gaso. gals.
1	210	26.0	210	1,000	1.05	220.5	507	26.0	730	905	1,100	1.53	1,683.0
2	240	23.4	250	1,042	1.53	382.5	367	23.0	410	1,116	810	1.48	1,198.8
3	175	18.8	75	429	1.05	78.8	260	18.8	240	1,200	760	1.00	760.0
4	83	25.0	75	918	1.50	112.5	457	24.9	163	357	525	1.92	1,008.0
5	50	21.0	85	1,700	.65	55.3	80	21.0	131	1,638	391	.65	254.2
6	220	22.0	85	386	1.80	153.0	360	21.9	550	1,528	850	1.75	1,487.5
7	5	18.0	10	2,000	.75	7.5	38	18.0	25	658	325	.80	260.0
8	81	21.0	100	1,235	.92	92.0	166	20.6	110	663	350	.98	343.0
9	104	18.8	125	1,201	.97	121.3	117	19.4	125	1,068	375	1.00	375.0
10	92	20.5	85	924	.96	81.6	131	20.8	100	763	300	1.00	300.0
11	130	20.2	110	846	1.00	110.0	209	20.4	210	1,003	460	.98	450.8
12	114	21.2	100	877	.98	98.0	154	21.3	130	844	380	1.04	395.2
13	250	24.5	125	500	1.48	185.0	610	24.7	450	738	820	1.45	1,189.0
14	335	27.0	178	532	1.92	341.8	797	27.(	832	1,043	1,100	1.87	2,057.0
15	190	34.9	619	3,262	.95	588.1	343	33.[illegible]	625	1,821	875	1.05	918.8
16	109	19.4	600	6,000	.97	582.0	265	18.2	625	2,358	835	1.03	860.1
17	169	28.0	1,000	6,250	1.50	1,500.0	381	28.0	1,100	2,889	1,100	1.45	1,595.0
18	188	27.6	275	1,462	1.90	528.5	547	24.0	271	495	709	3.02	2,141.2
19	403	23.0	55	....	3.00	165.0	476	23.0	260	546	800	2.20	1,760.0
20	50	10.0	125	2,500	.30	37.5	300	11.0	300	1,000	700	.58	406.0
21	232	23.0	110	476	.77	84.7	293	23.0	285	973	685	.74	506.9
22	93	24.4	225	2,500	.87	195.8	240	24.3	299	1,245	590	1.27	749.3
23	119	23.5	135	1,227	.86	116.1	296	23.4	200	676	600	.85	510.0
24	118	33.4	152	1,288	.95	144.4	165	23.5	250	1,514	550	1.00	550.0
25	79	20.6	75	949	1.25	93.8	227	19.8	259	1,141	810	1.30	1,053.0
26	100	10.0	150	1,500	.26	39.0	900	13.0	350	389	800	.50	300.0
27	200	10.0	150	750	.26	39.0	350	11.8	460	1,315	550	.48	264.0
28	39	33.5	110	1,375	.92	101.2	241	32.[illegible]	113	469	358	.90	322.0
29	70	22.0	105	1,500	.97	101.9	214	22.0	131	612	367	.95	348.7

Loomis Oil Well Control Co., Long Beach, Calif.


Gauge Pressure in Pounds per Square Inch
Cubic Feet of Air or Gas Dissolved per Barrel of Oil
Air in California 25° Crude
Air in Wyoming 36° Crude
Air in Oklahoma 37° Crude
Gas in California 25° Crude
Gas in Oklahoma 37° Crude
Gas in Wyoming 36° Crude
Note: The natural gas used contained 98.3% CH4, 1% CO2 and 0.7 Residue.

Graphs showing relative solubilities of natural gas and air in various crudes. (After Dow and Calkin, United States Bureau of Mines.)

with air unless perchance there is some oxidation and at ordinary temperatures such chemical reactions are questionable. Considering the resultant corrosion problems, more persistent emulsions produced and explosion hazards, it is usually more economical to use gas instead of air.

Slippage in the Eductor

Slippage is a term applied to the tendency of the occluded gas bubbles to rise through the eductor without corresponding movement of the oil—or conversely, the tendency of the globules of oil to fall downward through the upward movement of the gas.

The statement is made in view of the two contending ideas of the action within the eductor. With low velocities at the bottom of the eductor the gas must be distributed in bubbles of varying sizes but as the velocity increases in the ascent the proportion of gas to oil is such that the oil must be in droplet form. Therefore, there are two differing conditions within the eductor if the velocity is not controlled.

It has been stated that the slippage of gas through the fluid[7] will vary approximately as the square root of the diameter of the gas bubble and that the rate of fall, or slippage, of a droplet of oil through ascending gas is proportional to the square root of the diameter of the globule[8]. In the first case the average sized bubble will slip through the fluid at about 1.5 feet per second, and in the second case it was stated that a globule of water 1 milimeter (.03937 inch) in diameter would fall at the rate of approximately 14 feet per second; that is, air traveling at 14 feet per second with a density of one atmosphere, would hold such a globule in suspension. Hence it would seem that the percentage of slippage loss will depend upon the size of the bubble and globule and the velocity of the flow through the eductor, with due allowances for differing physical properties of oils and gases.

However, if the velocity were controlled throughout the range of the eductor it is conceivable that the oil could be distributed as globules from the beginning to the end. This would prevent overloading the eductor near the bottom, causing spasmodic surging and the formation of alternate plugs of gas and oil. It is obvious, then, that some velocity will give the best results for a specific condition and it is only reasonable to assume that a well will perform best when tubed with reference to velocity.

[7]Compressed Air Power, Daw, Pitman & Sons. Page 269.

[8]Benjamin Andrews, Oil Weekly, December 9, 1927.

The velocities of existing lift installations vary widely; the bottom velocities vary from 2 to 40 feet per second and the discharge velocities vary from 60 to 400 feet per second. The friction becomes enormous at these higher velocities and thus establishes high back pressure on the producing formation and in some cases prohibits the influx of oil into the well.

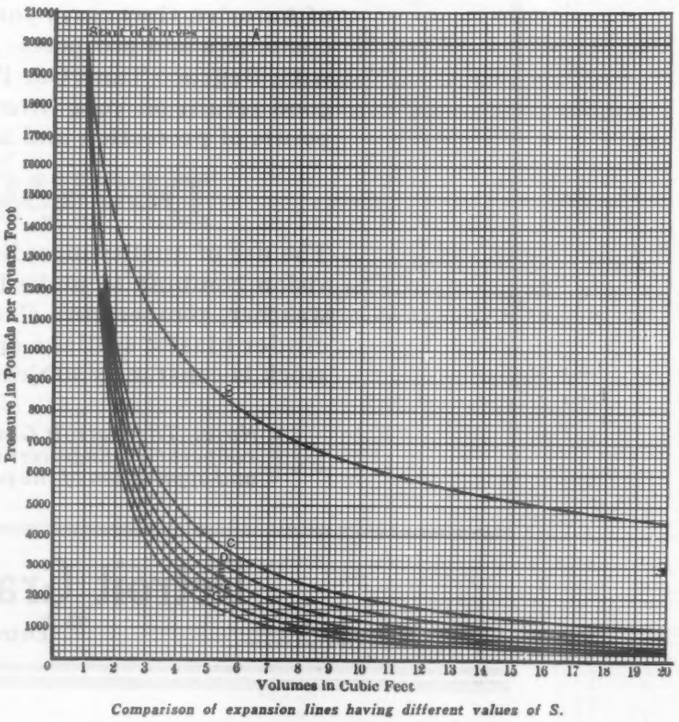
Thus it will be seen that the relative low velocities at the bottom of the eductor permit excessive slippage and hence low mechanical efficiency, while at the top the high velocities cause excessive friction. Therefore, there is need of an increased bottom velocity and a decreased discharge velocity. This condition has been recognized and the use of tapered tubing has been beneficial in correcting it.

It has been stated that a bottom velocity of 40 feet per second minimum and a discharge velocity of 100 feet maximum[9] would effect maximum efficacy in the lift with allowances for variation of densities, viscosities, etc., of oils. However, oil wells are not drilled and cased especially for the lift, nor are the proportions of the lift chosen for efficiency alone, but chiefly to obtain the greatest revenue from the well. Therefore, producing oil by the lift is not merely a lift problem, but is inseparable and really a part of the oil production problem. With this in mind any suitable velocity that will allow maximum revenue will be very acceptable.

Calculation of Velocity

Motion is a change of position. Velocity takes into account the time element and, therefore, is the rate of change of position. The unit of time may be any quantity, but for lift calculations the second is used the most extensively. Hence, if a substance changes its posi-

[9]Benjamin Andrews, Oil Weekly, December 9, 1927.



Comparison of expansion lines having different values of S.

Curve A has the exponent S equal 0
Curve B has the exponent S equal .5
Curve C has the exponent S equal 1.0
Curve D has the exponent S equal 1.1
Curve E has the exponent S equal 1.2
Curve F has the exponent S equal 1.3
Curve G has the exponent S equal 1.4
Curve H has the exponent S equal 1.5

Photograph shows Foxboro Instruments and Robinson Orifice Flange Fittings.

Below—The Foxboro Flange Fittings: 24 inch diameter and 2 inch diameter, showing wide range of sizes available. Foxboro Flanges are tapped at the factory. It is impossible to install them incorrectly.

A Good Combination—

Foxboro Orifice Meters and Robinson Orifice Flange Fittings

WHEN the products of two leading manufacturers are combined, you get a combination that *can't be beaten.*

Such is the case with Foxboro Orifice Meters and Robinson Orifice Flange Fittings.

For eighteen years, the Foxboro Orifice Meter has been filling the bill to a T for the leaders in the oil and gas industry. Thousands have been sold. Read the points in which Foxboro Orifice Meters excel. Agreed upon by leading oil and gas engineers.

Accurate.
Easy to Clean.
Uniform Scale Chart.
Easy to Zero.
Uniform Pen Travel.
Easy to Read.
Quick to Assemble.
Powerful Dirt-defying Machined Steel Float.
Lowest Maintenance Cost.
Interchangeable Parts.

A list that means a lot in time, labor, and money saved.

And the Robinson Orifice Flange Fittings —as prominent and noteworthy in its own field.

Write or wire the nearest Foxboro Branch Office. Ask for a demonstration of the most accurate, powerful and dependable Orifice Meter ever built.

THE FOXBORO COMPANY
Neponset Avenue, Foxboro, Mass., U.S.A.
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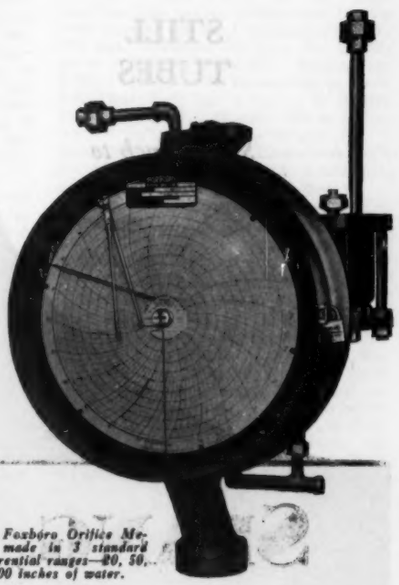

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tion a distance of 20 feet in 1 second, we say the velocity is 20 feet per second.

If unit volume of fluid flow through a tube of unit area in unit time, then by the formula:

$$\text{Velocity} = \frac{\frac{\text{volume}}{\text{time}}}{\text{area}}$$

the velocity would be 1. If the volume were in cubic feet and the area of the tube in square feet and the time consideration in seconds, then the velocity would be in feet per second.

The velocity of flow of a mixed liquid and gas is determined in a like manner, as:

$$\text{Velocity} = \frac{\frac{\text{volume of fluid plus volume of effective gas}}{\text{time}}}{\text{effective area of the eductor}}$$

The velocity in the eductor will increase from the bottom to the top, if the effective area of the eductor remains the same, due to the continually expanding gas with diminished pressure.

Assuming the lift to be making a constant production, we may further assume that the same weight of oil and gas flow across every transverse section of the eductor per second but at different velocities[10]. Then by correcting the volume of effective gas and adding the volume of oil, the velocity at any pressure may be determined with the above formula.

To determine the point in the eductor at which a given pressure and velocity may exist is a task of a different caliber. The absolute pressure at any point in the eductor is due to the weight of liquid and gas above it, plus the head for friction, acceleration, slippage, plus the pressure at the discharge of the eductor. Since there is no coefficient of friction available for the flow of mixed oil and gas, or for slippage, the task is nonpresentable. However, from experience, we may assume that for different velocities in the eductor given results are approached.

[10]Compressed Air Power, Daw, Pitman & Son. Page 270.

GULF COAST FIELDS

(Continued from Page 48)

Rycade Oil Corp.'s No. 7 Bouillon fee is fishing at 3,854 feet. This company's No. 3 State is drilling in sidetracked hole at 3,272 feet. Gulf Refining Co.'s No. 13 Industrial, Starks, Calcasieu Parish, is drilling at 5,276 feet and No. 15 Lutcher-Moore is drilling at 4,737 feet. Union Sulphur Co., which completed two good wells at Sulphur Dome, Calcasieu Parish, has made locations and is building derricks for two other tests, Nos. 46 and 47 fee. Pure Oil Co.'s No. 7 Yount Lee Oil Co., Sweet Lake, Cameron Parish, is fishing at 5,426 feet.

SOUTH LOUISIANA

Ascension Parish—Gulf Refining Co. has abandoned its No. 1 Belle Helene, first test on the Darrow Dome prospect. This test was drilled to below 5,580 feet. Gulf Refining Co.'s No. 14 United Land Co., southeast of the Sorrento Field, is drilling at 3,750 feet.

Calcasieu Parish—J. O. Davis' No. 1 Mimms, Section 20-9s-7w, is drilling gumbo at 3,412 feet.

Cameron Parish — Shell Petroleum Corp.'s No. 10 Watkins, Black Bayou, swabbed some oil from cap at 979 feet but is to be rigged up to pump. No. 11 is waiting a rig. The Texas Company's No. 3-A Calcasieu Lake, Calcasieu Lake Dome, is drilling hard lime at 3,280 feet.

Iberia Parish—The Texas Company's No. 3-A Vermillion Bay, Vermillion Bay Dome, is fishing with bottom of hole in rock at 4,700 feet.

Iberville Parish — Shell Petroleum Corp.'s No. 3 Wilbert, White Castle, is drilling sandy shale and lime at 4,993 feet. Standard Oil Co.'s No. 2 Wilbert, Bayou Blue, at latest report was drilling sandy shale at 3,026 feet. No. 1 Schwing, same dome, was drilling below 4,635 feet and No. 3 Wilbert and Nos. 2 and 5 Schwing were standing rigged.

Plaquemine Parish—The Texas Company's No. 1 Guardian, Island Bay, on the new dome prospect of the same name, is waiting casing cement to set to test a sand showing oil at 1,662-73 feet. The 6⅝-inch casing is at 1,554 feet. This is the first test on the prospect which is the farthest southeast point of Louisiana.

St. Landry Parish—Gulf Refining Co.'s No. 1 Gaudet, Point Barre, is drilling below 2,736 feet. The Texas Company's No. 2 Botney Bay, same dome, is drilling shale and lime at 3,012 feet.

St. Martin Parish—All operations on the Hager Dome prospect, the only activity in the parish outside of Bayou Bouillon, previously reported, are shut down because of high water.

Terrebonne Parish—The Texas Company's No. 1 Bay Coon Road, Section 17-22s-18e, first test on the dome prospect, blew out after drilling plug at 610 feet. Saturday the well was blowing wild. Bottom of the hole is 615 feet. This company's No. 1-A Dog Lake Bayou, Section 6-22s-16e, another new dome prospect, is standing 800 feet in oil. Efforts to swab the oil lower have failed and the well will be put on the pump. Oil tests 20 gravity. The Texas Company's No. 1-A Timbalier Bay, Section 19-23s-20e, is drilling gumbo at 1,000 feet.

Barbers Hill—Chambers County

Unice Oil Co.'s No. 1 Feldman, east side of the dome, was being tested as the week closed. It was in the deep sand at a total depth of 5,221 feet and with screen set was slopping over and trying to clean itself. It probably will make only a small well. Five other deep tests are at interesting depths. Mills Bennett Production Co.'s No. 2 Smith has drilled back to the oil sand from which it was producing several weeks ago when another well drilled into it killing the production. It has set 4¾-inch casing at 5,107 feet. This company's No. 1 Hamman-Armstrong also is on the sand and has set casing at 5,066 feet. This company's No. 1 Barber on the north side of the dome was being watched closely as the week closed, it being in shale, sand and lime showing oil at 5,578 feet. The deep production so far is on the east and southwest flanks of the dome. The latter company's No. 1 Smith, east side deep sand discovery well, is milling at 4,412 feet in order to sidetrack and drill back to the sand. Humphreys Corp.'s No. 1-H Kirby is drilling sand and boulders at 1,949 feet. Its No. 1 Tarbutton, which figured in a well collision, is fishing drill pipe at 4,350 feet. This company's No. 8-A Kirby is rigged up. Rexal Oil Co.'s No. 1 Smith is drilling gumbo at 2,540 feet. The latter's No. 2 McLean is fishing 10-inch casing which parted when being set.

On the southwest side of the dome, Sun Oil Co.'s No. 1 Chambers is in sand and shale showing oil at 5,723 feet. This company's No. 2 Chambers is drilling gumbo at 4,724 feet. Yount Lee Oil Co.'s No. 4 Chambers is drilling shale and lime at 5,734. The latter's No. 6 Chambers is drilling shale and lime at 2,498 feet.

Boling—Wharton and Fort Bend

South Texas Petroleum Co.'s No. 6 Bay, northeast side of the dome, is drilling hard, sandy lime at 3,341 feet. The Texas Company's No. 1 Bushnell is drilling sticky shale at 4,157 feet. The latter's No. 1 Pleasants has been abandoned in heaving shale at 4,140 feet. Sun Oil Co.'s No. 6 E. C. Farmer is standing in shale at 3,270 feet and No. 7 is drilling rock at 522 feet.

Raccoon Bend—Austin County

Humble Oil & Refining Co. and Valley Oil Corp.'s No. 1-D Ernest Grawunder, 9,000-foot south extension test, is drilling sandy shale at 3,795 feet. These operators' No. 4 Hardy on the north edge is waiting cement to set at 1,318 feet. No. 5 Hardy is a location. No. 2 Ollie Wilson is drilling sandy shale at 3,264 feet. No. 3 Saunders is waiting cement to set at 183 feet. No. 1 Mueller is drilling shale at 3,263 feet. No. 2-A Bracey is drilling hard shale at 2,519 feet. No. 1-B Washington is reaming with bottom of the hole at 3,086 feet. No. 1 Helmuth is drilling shale and shell at 2,920 feet. No. 1 Stahlbaum is drilling hard sand at 1,023 feet. No. 1-A Mitchell is drilling sticky shale at 1,145 feet. No. 1-B Mitchell is rigged. No. 2 Stravoski is drilling sand rock at 187 feet. No. 1 Koehn is waiting surface casing cement to set at 66 feet. Nos. 3 Walton and 4 Thompson are derricks.

DeWalt—Fort Bend County

Humble Oil & Refining Co. has two more tests on the oil horizon with casing cemented to test, and two others near the pay level. No. 6 Brazos Farms has cemented 7-inch casing with bottom of hole at 3,337 feet and No. 4 Hamner Fee has cemented with bottom at 3,347 feet. No. 2 Hamner Fee is drilling sandy shale at 3,345 feet and No. 1-B Deatherage is in shale at 3,572 feet. No. 3 Nelson is drilling hard shale and lime at 1,361 feet. No. 4 Nelson is drilling gumbo at 264 feet. No. 4 Camp is drilling shale and lime at 1,972 feet. No. 1 Hamner Fee is drilling shale at 2,526 feet.

Humble—Harris County

Humble Oil & Refining Co.'s No. 1 Williams, south side deep test is drilling sandy shale at 4,585 feet. The Texas Company's No. 264 Land Slide, offset to the No. 1 Williams, is spudding. The latter company's No. 263 Land Slide, west offset to South Texas Petroleum Co.'s No. 4 Morris, completed the past week, has cemented 6⅝-inch casing at 3,707 feet. It is in brown, sticky shale. This company's No. 262 Land Slide is drilling brown shale and sand at 4,492 feet. No. 265 Land Slide is rigging up, and No. 21 Wheeler & Pickens, north offset to the No. 4 Morris completion, is drilling gumbo at 1,641 feet. South Texas Petroleum Co.'s No. 5 Morris has spudded and the latter's No. 1 Burt is drilling sand and lime at 2,305 feet. Marland Oil Co.'s No. 1 Cezeaux is drilling below 900 feet. The latter is some distance to the east of the deep producing pool. Sun Oil Co.'s No. 47 River, north side, is drilling gumbo at 4,105 feet.

Pierce Junction—Harris County

Gulf Production Co.'s No. 8 Cain is fishing at 4,637 feet. This company's No. 3 Fitzsimmons-Hamman is drilling hard sand and shale at 4,429 feet, and its No. 30 Taylor is drilling gumbo at 743 feet. Navarro Oil Co.'s No. 1-B Cain, an old well being deepened, is drilling lime and shale at 4,580 feet. Navarro Oil Co. and Humble Oil & Refining Co.'s No. 3 Dooley is drilling sand at 4,271 feet. Navarro Oil Co. and Texas Exploration Co.'s No. 15 Dooley is waiting cement to set at 4,376 feet. T. G. Shaw and Texas Exploration Co.'s No. 2-E Fitzsimmons, completed last November, a 1,000-bbl. well at 3,791 feet, is drilling deeper at 4,396 feet. These operators have a derrick up for No. 3 Fitzsimmons-Barron. Moody Corp.'s No. 4 Hume is drilling at 3,217 feet. The latter's No. 2 Calvert and No. 2-A Whitehead are rigged up.

The above tests are all on the east and northeast sides of the dome. On the west, Rio Bravo Oil Co.'s No. 9-B Settegast has been abandoned at 3,574 feet. This company's No. 15-A Settegast is drilling gumbo at 1,995 feet, and its No. 4 Fee, a former well, is rigging up to deepen. Saxet Gas Co.'s No. 2 Herman Estate is drilling deeper after testing salt water at 3,735 feet. This company's No. 3 Herman is standing a location. Pure Oil Co.'s No. 1 Herman Estate which tested salt water at 4,090 feet, is standing waiting fishing tools to pull screen. Smith and associates' No. 3 Parsons on the northwest, a former producer, is drilling deeper at 4,475 feet. Gulf Production Co.'s No. 29 Taylor, furthermost test to the southeast on the southwest side of the dome is in a hard sand and shale showing oil at 3,629 feet.

South Texas Petroleum Co.'s No. 1 Meyers, rank wildcat on the southeast, is drilling shale at 4,760 feet.

Blue Ridge—Fort Bend County

Gulf Production Co.'s No. 15 Luscher, east side of the dome, is drilling below 3,015 feet. Moody Corp.'s No. 7 West-Schenck, south side, is in sand and shale showing oil at a total depth of 4,467 feet and has cemented 6⅝-inch casing at 4,417 feet. Sinclair Oil & Gas Co.'s No. 4 Davison, a work-over, is drilling deeper at 4,412 feet. Navarro Oil Co.'s No. 1-C Robinson, northwest side of the dome, is drilling gumbo at 2,550 feet.

Liberty—Liberty County

Many operations in the Liberty Field have been shut down most of the week because of high water, the field being in the Trinity River bottoms. Navarro Oil Co., however, picked up what is believed to be a freak shallow sand at 508 feet in its No. 1 Gulf, which is flowing 8 bbls. daily. This company's No. 3 Baldwin, in the same area, but further east, was flowing by heads from sand at 3,315 feet. Vacuum Oil Co.'s No. 11 Barrett is waiting cement to set to test at 2,803 feet. Sun Oil Co.'s No. 44 Mitchell tested salt water at 1,292 feet and has plugged to 1,248 feet to reset screen. Humble Oil & Refining Co.'s No. 4-B Reviere is drilling hard, sandy shale at 2,742 feet. Empire Gas & Fuel Co.'s No. 3 Goggan, Sun Oil Co.'s No. 45 Mitchell and Yount Lee Oil Co.'s No. 17 Mitchell, east side flank tests, are standing because of highwater. The Texas Company's No. 3 Pickett is in sand and shale at 5,165 feet but has been delayed because of high water.

Big Creek—Fort Bend County

With the completion of The Texas Company's No. 5 Whent as a producer and Navarro Oil Co.'s No. 3 Hausler as a gasser, only two rigs are left running in Big Creek, these being Gulf Production Co.'s No. 53 Davis, drilling gumbo and shale at 3,900 feet, and the latter's No. 37 Davis, a former well being worked over.

Spindletop—Jefferson County

Gulf Production Co.'s No. 8 Roche, an old well deepened to approximately 3,420 feet, has set strainer to test an oil showing sand at that depth. Unity Oil Co.'s No. 14 Gladys City is drilling gumbo at 724 feet. Yount Lee Oil Co.'s No. 4 Fee, a work-over, is drilling shale at 3,867 feet. No. 3 Gladys City, a work-over, is in sand at 3,527 feet. No. 36, a work-over, is in shale at 4,023 feet. No. 76 Gladys City went into heaving shale and at a total depth of 6,114 feet probably will be abandoned. No. 89 is in sand at 3,691 feet. No. 103 McFadden is in sand at 2,919 feet. No. 104 is in shale and lime at 2,639 feet. No. 49, a work-over, is in sand at 3,172 feet, and No. 26, another work-over, is coring at 2,951 feet.

Hull—Liberty County

Gulf Production Co.'s No. 25 Morris-Phillips, a semiwildcat on the north side, has been having considerable trouble with heaving shale at approximately 5,270 feet. Daisetta Oil Co.'s No. 1 Wilson is drilling at 1,096 feet. Empire Gas & Fuel Co.'s No. 21 Barngrover is down 3,667 feet. Gulf has a rig up to deepen No. 64 Phoenix. Humble Oil & Refining Co. is preparing to deepen No. 4 Hooks-Spell. Republic Production Co.'s No. 97 Dolbear is drilling at 2,139 feet, and its No. 1 Taylor at 2,981 feet.

Saratoga—Hardin County

West Production Co.'s No. 1 Baker, deep wildcat test, is drilling hard sand rock at 4,395 feet.

Miscellaneous Texas Fields

Gulf Production Co.'s No. 8 Smith, High Island, Galveston County, is drilling at 2,947 feet. Marrs McLean's No. 15 Cade is drilling at 3,364 feet. Rycade Oil Corp.'s No. 26 Wisdom, Nash Dome, Brazoria County, is rigging up. Leonard Petroleum Co.'s No. 4 Wisdom, Damon Mound, Brazoria County, is drilling gumbo at 1,812 feet. Rycade Oil Corp.'s No. 6-A Kountze, Markham, Matagorda County, still is trying to clean hole to deepen from 3,797 feet. West Production Co.'s No. 1 Myers, Markham, is drilling sand and shale at 4,335 feet. Gulf Production Co.'s No. 19 Moore, Orchard, Fort Bend County, is drilling sand rock at 2,920 feet. Sun Oil Co.'s No. 2 Kovelcik, North Dayton, is in shale at 4,529 feet.

SOUTH LOUISIANA

Hackberry—Cameron County

Calcasieu Oil Co.'s No. 1 Lenke, East Hackberry, is in sandy shale showing oil

at a total depth of 3,850 feet and has set 6⅝-inch casing. This company's No. 6 Dorion is in rock at 3,728 feet. Nos. 14 Watkins and 7 Valery are standing as locations. The Texas Company's No. 5-B Calcasieu Lake is standing a location. The location being in the lake will necessitate driving piling and delay in getting a derrick up.

On the south side of the old Hackberry Dome, Progressive Oil Co.'s No. 1 Little is running tubing in an attempt to make a flowing well. It came in flowing by heads at 3,086 feet. Coastal Oil Co.'s No. 1 Duhon is coring at 4,147 feet. Cameron Oil Co. and Rycade Oil Corp.'s No. 2 Vincent is rigged up. Rycade Oil Corp. and Humble Oil & Refining Co.'s No. 3 Gulf Land on the west side of the dome, is rigging up.

Lockport—Calcasieu Parish

The Texas Company's No. 1 Moss, west extension test, is in sandy shale showing oil at 4,715 feet and has set 6⅝-inch casing to test. Shell Petroleum Corp.'s No. 1 Miller, north extension test, is drilling brittle, blue shale at 5,133 feet. Vacuum Oil Co. and Gulf Refining Co.'s No. 9 Miller is preparing to work-over at 4,392 feet. No. 15 Miller, a work-over, is drilling deeper in sticky shale at 4,844 feet. No. 24 Miller has set screen to test oil sand at 3,960 feet. No. 3 Bayou-D'Inde is pulling screen to deepen from 4,400 feet.

SOUTHWEST TEXAS

(Continued from Page 51)

Sun Oil Co.'s No. 1 Lopez, Survey 728-30, is making location.

Guadalupe County

W. E. Clark and others' No. 1 in M. Miller Survey is location.

Gonzales County

Pritchard's No. 1 J. Lamm, 3½ miles from Waelder, is to get under way soon; delayed by heavy rains.

Jackson County

The Texas Company's No. 1 Lawrence at 3,000 feet has been taken over from Douglas and others; washing down to bottom to deepen.

Refugio County

Mission Drilling Co.'s No. 1 Huddleston, Block 94 center, is rigging up.

Mission Drilling Co.'s No. 2 Mitchell, south end of Oak Street, is location 300 feet west of No. 1.

Mission Drilling Co.'s No. 1 O'Brien is location.

Houston Oil Co.'s No. B-1 Rooke, located southwest of No. 10, has spudded in.

Karona Oil Co.'s No. 1 Jerry Ryals, 150 feet south and west lines, has set 450 feet of 10-inch surface casing.

Webb County

O. W. Killam's No. 10 Bruni, Survey 9, is location 1,449 feet northwest lines, 150 feet southwest lines.

Zapata County

Buck & Coursey's No. 1 Garza, Block 47, Comitas grant, is location 150 feet northwest and northeast lines.

LOUISIANA-ARKANSAS

(Continued from Page 56)

20-3. Natural Gas Producing Co. cemented 8-inch at 892 feet and is drilling at 2,015 feet on No. 2 Hale, Section 14-21-3; No. 1 Hollis, Section 14-21-3, set 185 feet of 1-inch and 890 feet of 8-inch. Palmer Corp. has rig up for No. 1 Downey, 1,983 feet north and 1,982 west SE cor. SW Section 12-20-3, and made location for No. 2 in the center of the SW NE Section 21-21-3.

Sabine Parish

Pleasant Hill—Arkansas Natural Gas Corp. is drilling 6-inch plug from No. 13 Logan, Section 33-10-12, total depth 3,300 feet.

Richland Parish

S. R. Humble's No. 1 Etheridge, Section 28-17-6, is drilling at 1,410 feet. Magnolia Petroleum Co. cemented 10¾-inch second string at 904 feet on No. 2 McCoy, Section 29-16-6, and 15½-inch at 200 feet and 10¾-inch at 930 feet on No. 2 Noble, Section 36-16-5. International Gas Products Co.'s No. 1 Kate Humble, Section 35-16-6, is drilling below 200 feet. Southern Carbon Co. is drilling gummy shale at 2,225 feet on No. 1 Tegola, Section 4-15-6, and has rig up for No. 1-B Tegola 660 feet north and east of the center of Section 5-15-6.

Webster Parish

Cotton Valley—Louisiana Oil Refining Corp.'s No. 3 Nelson, Section 28-21-10, is drilling anhydrite at 4,354 feet. Magnolia Petroleum Co. is coring lime and shell at 4,676 feet on No. 1 Ira Cox, Section 23-21-10; No. 1 McCook & Hibbler, Section 22-21-10, got a show of gas on drill stem test at 5,450 feet and is coring lime at 5,555 feet; No. 5-A Robbins, Section 21-21-10, is a rig. Ohio Oil Co. set 460 feet of 12½-inch on No. 43 Bodcaw, Section 24-21-10, and is drilling at 600. Palmer Corp.'s No. 5 Tillman, Section 27-21-10, is in chalk at 2,105 feet.

Sarepta and Shongaloo—Magnolia Petroleum Co. got 10 joints of oil and 8 of salt water on drill stem test of No. 1 Adkins, Section 4-22-9, at 2,665 feet, and set 8⅛-inch pipe at 2,650 feet to bail; No. 1 B. M. Cook, Section 2-22-11, cemented back to 2,710 feet, total depth 3,215; No. 1 Denman, Section 1-22-11, recemented bottom from 2,719-16 feet.

EAST TEXAS

Harrison County

Nick Barbare's No. 2 Saunders, E. M. Jenkins Survey, is in shale at 1,760 feet. C. H. Lyons and others are drilling No. 1 O'Bannion at 2,111 feet. H. D. McRitchie and others' No. 1 Crofts, F. L. Merriwether Survey, was dry on drill stem test at 1,864-73 feet and will make another test from 1,873-80 feet. A prior test at 945 feet got salt water.

Panola County

Adams and Walker are arranging for a drill stem test at 2,685 feet on No. 1 Adams in the James Matthews Survey. Casatex Oil & Gas Co. is drilling No. 4 Agurs, J. Womack Survey, at 2,530 feet. Eureka Natural Gas Co. is drilling 6-inch plug on No. 4 Gully, James Matthews Survey, total depth 2,621 feet. Magnolia Petroleum Co.'s No. 3 Adams in the James Matthews Survey was dry on drill stem test at 2,751 feet and set 5¾-inch at 2,766; No. 4 Ella Baker, B. C. Jordan Survey, perforated casing from 2,280-2,359 feet, total depth 3,101; No. 3 Lula Fletcher, same survey, cored sandy shale at 2,740 feet. The Texas Company's No. 10-A Adams in the Thomas Cox Survey is in chalk at 1,670 feet.

ARKANSAS

Johnson County

Arkansas Natural Gas Corp.'s No. 2 Bynum, Section 12-10-24, got a salt water sand at 3,125 feet and is shut down for orders.

Ouachita County

Smackover—Phillips Petroleum Co. set 67 feet of 10-inch and is drilling at 1,110 feet on No. 1 Scott, Section 34-15-15.

Union County

Champagnolle—Bailey & Tribble are rigging up to drill No. 1 El Dorado Realty Co. in Section 7-17-13. Gann and others' No. 1 Doss, Section 10-17-14, set 10-inch at 67 feet and is drilling at 800. H. L. Hunt is drilling No. 7 Gregory, Section 10-17-14, at 2,660 feet. Lion Oil Refining Co.'s No. 1 El Dorado Realty Co., Section 7-17-13, set 10-inch at 150 feet and is drilling at 1,665. Magna Production Co. is cementing back 4 feet in the 4-inch on No. 2-B El Dorado Realty Co., Section 7-17-13, total depth 3,088 feet. Ohio Oil Co. tested 3,000,000 feet of gas with a show of oil from 2,994-3,007 feet and is coring at 3,020 feet; No. 1 Lynn, Section 7-17-13, cemented 6⅝-inch at 3,065 feet and is drilling plug; No. 1 M. H. Nash is a rig in the SE cor. NE SW Section 7-17-13; No. 1 E. Raulston, Section 12-17-14, is drilling at 2,960 feet. Oilwell Corp. set 150 feet of 10-inch on No. 3-C Perdue, 500 feet south and 50 feet west NE cor. NW NE Section 9-17-14. Pure Oil Co.'s No. 2 Nash, Section 7-17-13, is a rig. Rovenger Oil Corp. set 10-inch at 154 feet on No. 2-B Perdue, Section 9-17-14, second hole, total depth 1,715 feet.

El Dorado—Grimes Brothers' No. 2 Hill, Section 7-18-14, has 300 feet of fluid in the hole from 11 feet of sand, total depth 2,264 feet, and is arranging to pump. Gulf Refining Co. has temporarily abandoned No. 1 Cook, Section 1-18-15, at 3,765 feet after a salt water test at 3,710-42 feet. Weisinger and others cemented 10-inch at 65 feet on No. 7 Goodwin, Section 31-17-15.

LA.-ARK. WILDCATS

(Continued from Page 56)

east of nearest production it adds a considerable area of proven territory between the northern and southern divisions of the field. On the other hand, Wilson and others' No. 1 Buie in Section 17-15-7, was abandoned. Five miles south of the most easterly producers in the field its abandonment is scarcely a criterion of what to expect that far from production as it was not drilled deep enough to be a test of possibilities in its locality, total depth being 1,946 feet. Austin & McDonald's No. 2 Millsaps, Section 17-17-6, got a second water test at 2,522 feet.

Southeastern Arkansas' wildcatting campaign recorded another failure when Ohio Oil Co. abandoned No. 1 Jerome Lumber Co., Section 13-15-4, Drew County, in lava at 3,748 feet. Location is far north and east of the wells that have kept this part of the state toward the fron for the last year. Thorn Oil Co., drilling No. 1 Burford in Section 22-14-14, DeSoto Parish, Louisiana, abandoned the effort at 3,020 feet at which the well has been shut down since February.

Palmer Corp. Takes Gas Rights

In addition to renewing all its leases on approximately 60,000 acres in Catahoula Parish on the north of Catahoula Lake, Palmer Corp. has taken the gas rights on the Roxana's block of 3,000 acres on both sides of the line between Township 19, Range 10 and 11, East Carroll Parish, for a reported price of $75,000 cash and $35,000 out of gas. It is understood that these transactions do not forecast any immediate drilling.

Southern Crude Oil Purchasing Co. has a block in north central Claiborne Parish on which it must drill before long and it has a tentative location for the well in Section 22-23-6, around which The Texas Company has taken 400 acres, the Roxana 240 acres and the Arkansas Natural Gas Corp. 400 acres. In connection with the T. B. Slick block in Claiborne reported two or three weeks ago, Oakes and others who started No. 1 Richardson in Section 19-21-7, Homer, as a deep test but never got beyond 700 feet with it, are reported to have renewed their leases on 1,800 acres surrounding the well for 10 years and submitted a proposition to Mr. Slick to carry on the test. Mr. Slick is reported figuring on a series of tests on his 30,000 acres or so, north of Homer.

Wildcats around D. C. R. Oil Co.'s No. 1 Hunter, Section 17-19-14, Caddo Parish, recently sold to the Standard Oil Co. do not appear to be backing up the prospects afforded by this producer. Lide & Davidson's No. 1 Glassell in Section 1-19-15, northwest of the discovery, was dry on drill stem test at 2,433 feet, approximately the depth at which it should have found production, and was coring at 2,450 feet.

Formation Dips

The formation from which the discovery well is producing dips from northwest to southeast and the discovery well was completed at 2,422 feet. Root Refineries' No. 1 Liebman, Section 12-19-15, west of the discovery, was coring limy shale at 2,538 feet and Standard Oil Co.'s No. 1 Henderson, Section 7-19-15, tested salt water with a show of oil at 2,427 feet in broken sand.

Walker and others reported still bailing a little oil from No. 1 Antrim in Section 28-22-13, total depth 3,017 feet, with no water or gas showing. The well is about mid-way between the Cartersville district and production in the Hosston and Pine Island districts of Caddo Parish but the wildcat showing does not appear to have created any great wave of excitement. Woodmansee and others' No. 1 Bollinger, Section 9-22-11, in the gas territory between Sarepta and Cartersville has been shut down for two months at 3,100 feet but drilled 60 feet further recently and is arranging for a drill stem test. In the Elm Grove district of Bossier Parish Woodley Petroleum Co. tested 2,500,000 feet of gas in No. 4 Whitehurst, Section 35-16-12, at 2,422 feet, total depth 2,386, and plugged back to set 4½-inch casing.

Enochs and others' No. 1 Curry in Section 39-11-12, Tensas Parish, was drilling sand at 3,765 feet, corrected depth. J. E. Cammatte's No. 2 Tugwell, Section 21-22-1e, Union Parish, is making salt water between the 6 and 12½-inch casings. Total depth is 2,148 feet with the bottom in 8 feet of sand and the operator will try to mud off the water and make a few feet more hole. He drilled plug a few weeks ago but did not bail at that time.

NORTH LOUISIANA

Bienville Parish

W. G. Gray is drilling gumbo at 1,300 feet on No. 1 Snyder, Section 15-16-6.

Bossier Parish

Corbett and others' No. 1 Murff, Section 18-17-11, made a show of gas at 910 feet, and is drilling at 932 feet. Triangle Drilling Co.'s No. 1 Fullilove, Section 11-17-12, set 12½-inch at 850 feet. Walker and others' No. 1 Antrim, Section 28-22-13, is still bailing a little oil with no gas or water showing, total depth 3,017 feet. Woodmansee and others ran drill stem test on No. 1 Bollinger, Section 9-22-11, which showed dry at 3,160 feet.

Caddo Parish

Lide & Davidson's No. 1 Glassell, Section 1-19-15, was dry on drill stem test at 2,433 feet and is coring at 2,450 feet. Humble Oil & Refining Co. and R. W. Norton's No. 1 Fortner, Section 32-21-16, is shut down at 4,000 feet, contract depth. Root Refineries' No. 1 Liebman, Section 12-19-15, is coring limey shale at 2,538 feet. Simplex Oil Co. is rigging up to drill No. 1 Dickson in Section 33-20-14. Standard Oil Co. tested salt water with a show of oil in shale with streaks of oil sand at 2,427 feet.

DeSoto Parish

Becker and others' No. 1 Tull, Section 23-12-15, ran drill stem test from 1,155-1,246 feet. Magnolia Petroleum Co. is coring sandy lime at 2,554 feet on No. 1 Clements, Section 28-12-11.

Franklin Parish

Ruston Drilling Co. cored sandy shale at 1,350 feet on No. 1 West Virginia, Section 23-15-7.

Jackson Parish

George O. Baird set 100 feet of 12½-inch on No. 1 Tremont, Section 24-16-1w, and is drilling around 325 feet.

Natchitoches Parish

Robeline Oil & Gas Co.'s No. 1 Cassady, Section 7-8-9, is in gummy shale with streaks of sand at 3,220 feet.

Red River Parish

Eylers Oil Co. topped the chalk at 1,157 feet on No. 1 Chaffraix, Section 30-12-10, and is coring.

Richland Parish

Austin & McDonald tested salt water at 2,522 feet on No. 2 Millsaps, Section 17-17-6, and are drilling gumbo at 2,624 feet. Palmer Corp. set 8-inch at 954 feet on No. 1 Miles, Section 11-17-6.

Sabine Parish

R. L. Gay is running sand pump on No. 3 Bowman-Hicks, Section 14-7-14, which has 200 feet of oil in the hole, total depth 2,178 feet; No. 1 Long Bell, Section 26-8-14, is on a rock at 740 feet. A. H. Tarver's No. 1 Long-Bell, Section 29-8-13, topped the Blossom at 2,409 feet and is drilling at 2,514 feet.

Tensas Parish

Enochs and others' No. 1 Curry, Section 39-11-12, is drilling sand at 3,765 feet, corrected depth.

Union Parish

J. E. Cammattee's No. 2 Tugwell, Section 21-22-1e, is flowing salt water between the 6 and 12½-inch strings and he will try to mud it off and deepen.

ARKANSAS

Ashley County

Atlantic Oil Producing Co. and others' No. 1 Young, Section 20-15-7, sidetracking at 2,646 feet, is shut down for fuel, total depth 2,790 feet.

Columbia County

T. R. Brown and Humble Oil Refining Co. have derrick up for No. 1 Spencer in Section 18-18-22. T. J. Bush and

others' No. 1 Jones, Section 5-17-18, set 12-inch at 124 feet. Helena Oil & Gas Co. is drilling lime at 2,680 feet on No. 1 Pickler, Section 19-19-22.

Bradley County

Phillips Petroleum Co. has begun drilling No. 1 Kline, Section 28-16-12, and is down about 150 feet.

Nevada County

C. F. Steel's No. 1 Groves, Section 21-14-20, is shut down at 2,071 feet.

Ouachita County

Arkansas Drilling Co.'s No. 1 Crowley, Section 27-15-18, is drilling at 2,405 feet. Timberlake and others' No. 1 Wright, Section 25-14-18, is drilling at 2,550 feet.

Union County

W. M. Coats tested salt water at 2,569-73 feet and is drilling at 2,643 feet on No. 1 McDuffie, Section 32-19-17. J. O. Moor and others' No. 1 Union Sawmill, Section 11-18-12, got a salt water sand at 3,280-82 feet and shut down for orders at 3,304 feet, contract depth.

EAST TEXAS

Shelby County

Gulf Refining Co.'s No. 1 Carraway, J. H. Patterson Survey, is drilling hard gray and brown lime with streaks of blue shale at 4,610 feet, the same formation it has been in since 4,325 feet.

MISSISSIPPI

Claiborne County—Ben White's No. 1 Shannon (also known as No. 1 Old Hen), Section 36-10-4, is fishing for 620 feet of drill stem, total depth 2,004 feet.

Hinds County—Hennessee and others' No. 1 Riverside, Section 23-16-5, is drilling at 1,100 feet. Reeder and others' No. 1 State, Section 25-6-1e, is shut down at 2,895 feet.

Lauderdale County—Meridian Natural Gas Co.'s No. 1 Hauser, Section 33-8-18, is drilling sandy chalk at 1,560 feet. Lauderdale Oil & Gas Co. is rigging up to drill No. 1 Lackey, Section 2-7-16.

Monroe County—Amory Petroleum Co. is fishing for tools on No. 1 Hall, Section 8-13-19, total depth 3,840 feet. Amory Natural Gas Co.'s No. 1 Carter (formerly reported as No. 2 Carter), Section 7-13-17, is coring at 2,320 feet. Arkansas Natural Gas Corp. is fishing for 5⅞-inch casing, total depth 3,300 feet.

Rankin County—Lion Oil Refining Co. is drilling the red beds at 3,700 feet.

Warren County—Henderson and others are rigging up to drill No. 1 Darnbush, Section 8-18-5.

Yalobusha County—Philps Brothers cored sand showing oil at 2,408 feet on No. 1 James, Section 20-11-5.

ALABAMA

Lamar County—Briggs & Knapp's No. 1 Wefel, Section 25-12-14, is shut down at 400 feet for repairs to the engine.

WEST TENNESSEE

Decatur County—Standard Oil Co.'s No. 1 Wyatt is fishing, total depth 1,210 feet.

CANADIAN FIELDS

(Continued from Page 47)

No. 1, LSD 6, same section, is drilling at 4,907 feet.

Home Oil Co., Ltd., is in no way a subsidiary to the Imperial Oil, Ltd. There does exist a drilling agreement, under which the Imperial Oil, Ltd., undertakes to drill out the Home company property, and give it expert supervision, both of which are paid for by the Home Oil Co., Ltd.

Foothills Oil & Gas Co.'s No. 2, LSD 8, Section 1-20-3w5, which recently got the top of the lime with a wet gas showing of 3,000,000 feet, is drilling out cement at 4,357 feet. Foothills' No. 3 (South West Petroleum), LSD 16, Section 8-19-2w5, is drilling at 3,209 feet. Foothills' No. 4, LSD 1, Section 26-20-3w5, is drilling at 1,210 feet.

Royalite Wells

Royalite Oil Co.'s No. 19, LSD 5, Section 6-20-2w5, has resumed drilling at 4,485 feet after cementing casing in the top of the lime. Royalite's No. 6, LSD 16, Section 31-10-2w5, is at 4,531 feet and cemented between 8¼ and 20-inch casing. Royalite's No. 12, LSD 3, Section 13-20-3w5, is cementing 8¼-inch at 4,279. Royalite's No. 16, LSD 2, Section 12-20-3w5, is fishing for liner at 5,060 feet. Royalite's No. 21, LSD 1, Section 13-20-3w5, is fishing at 3,874 feet. Royalite's No. 23, NW Section 31-19-2w5, is drilling at 2,693 feet. Royalite's No. 24, LSD 15, Section 29-19-2w5, has derrick up. Dalhousie Oil Co.'s No. 7, LSD 11, Section 18-20-2w5, is drilling at 403 feet. Advance Oil Co.'s No. 5, LSD 16, Section 19-19-2w5, is drilling at 3,267 feet.

Okalta Oil Co.'s No. 1, LSD 1, Section 1-20-3w5, is connecting 6-inch casing with the 4¾ string at 1,700 feet, to stop leakage and secure complete crude naphtha recovery. It has been making better than 400 bbls. a day. Okalta's No. 3, LSD 9, same section, is drilling at 1,300 feet after cementing back for a crooked hole. Okalta's No. 2, LSD 8, same section, has resumed drilling in the Kootenays at 3,170 and will be carried to the deep lime. Okalta Oils, Ltd., is planning a series of tests. Cellar is now being dug for No. 4 in Section 1-20-3w5, while work will be started next month on Nos. 5 and 6, to be followed by Nos. 7 and 8.

Great West Oils' No. 1, SE Section 7-20-2w5, is reported moving rotary equipment from Okotoks and getting in shape to resume at 5,405 feet. Regent Oil Co.'s No. 2, LSD 16, Section 1-20-3w5, spudded in last week and is setting stove pipe casing at 80 feet to shut off surface water. Regent's No. 1, same LSD, is making better than 105 bbls. a day from the lime. McLeod Oil Co.'s No. 2, LSD 16, Section 1-20-3w5, has started deepening to the producing horizon in the lower lime. McLeod's No. 3, same LSD, is drilling past a lost stem at 4,871 feet. McLeod's Nos. 1 and 4 are making approximately 125 bbls. a day.

Cleaning Out

Calmont Oils' No. 1, LSD 2, Section 1-20-3w5, is cleaning out at 5,650 feet and having considerable difficulty with lime cavings from shots. Some oil is being bailed; the crude tests 54.7 degrees. Calmont's No. 2, LSD 11, Section 20-19-2w5, is rigging up with rotary outfit, and practically ready to spud.

Illinois-Alberta Oils' No. 2, LSD 14, Section 12-20-3w5, is drilling 131 feet in the lime at 3,681 feet. New McDougall-Segur Oil Co.'s No. 2, LSD 14, Section 12-20-3w5, is reported making a settled production of 85 bbls. crude naphtha from the deep lime at 5,385 feet, but will be drilled deeper as soon as a 4-inch bit can be secured. New McDougall-Segur's No. 1, same LSD, which had light crude production in the Dakota sand at 2,495 feet, will be deepened to the lime with cable tools. No. 3, same LSD, which has been standing cemented at 3,280 feet for some time, will be deepened with rotary tools. Vulcan Oils' No. 1, LSD 11, Section 13-20-3w5, has finished swedging and is being deepened with cable tools from 5,004 feet. At this depth, 147 feet in the lime, the well had a production of 100 bbls. a day, but bridged intermittently. A string of tools has been at the bottom of the hole since the well was brought in more than two years ago. Vulcan's No. 2, 300 yards west of No. 1, standing for some months at 4,850 feet, will be finished later; and a third test will possibly be started.

Southern End of Field

In the southern end of the field, Mercury Oils' No. 1, LSD 13, Section 4-19-2w5, is drilling 450 feet in the Dakota at 2,850¾ feet. Sunlight Oils' No. 1, LSD 2, same section, is reported working on derrick. Lowery Petroleums is preparing to drill No. 1 in NW, Section 17-19-2w5, and No. 2 in SE, Section 9-19-2w5. Spray Oils' No. 1, LSD 9, Section 5-19-2w5, is at 50 feet and waiting for casing to shut off surface water. East Crest Oil Co.'s No. 1, LSD 5-6, Section 16-19-2w5, is drilling at 3,900 feet. Freehold Oil Corp.'s No. 2, LSD 8, Section 20-19-2w5, is reported working on derrick to spud in about June 1. Sterling-Pacific Oil Co.'s No. 1, LSD 15, Section 33-18-2w5, has cellar dug and is waiting for derrick timbers. Baltac Oils' No. 1, to be drilled by Imperial Oil, Ltd., on royalty, has been tentatively located west of Home's No. 1 and will spud in about July 1.

Sunburst Oils, Ltd., recently incorporated by Calgary and Vancouver interests will start a test on acreage in the south end of Turner Valley, where it has secured LSDS 11, 12 and 14, Section 28-18-2w5. The company has also contracted for a test in Section 20-19-3w5 on the Waite Valley structure; and has acreage in the Milk River and Jumping Pound areas.

Central Field

In the Central Field, British Dominion Oil Dev. Corp.'s No. 2, LSD 6, Section 12-20-3w5, is repairing at 4,465 feet. Freeman-Lundy Syndicate, LSD 10, Section 1-20-3w5, is reported drilling at 3,000 feet. Midfield Oil Co.'s No. 1, LSD 9, same section, is drilling below 1,200 feet.

Sentinel Oil Co., Section 8-20-2w5, will resume drilling next month at 4,650 feet. Anglo-Indian Oil Co., also controlled by J. F. Moodie and associates, is arranging to start development of its acreage this summer.

In the northern end of the field, Dome Oils' No. 1, Section 24-20-3w5, has spudded in and is running three shifts; the location is about 500 feet from United Oils' No. 4 in the same section. Dome Oils, Ltd., was recently organized by Calgary and Vancouver interests; officers are: President, R. A. Brown; vice president, George W. Norgan; secretary, W. M. Connacher. The company holds 40 acres adjoining the United lease; and Floyd Compton, field manager for United Oils, Ltd., will supervise development. George Snyder has the drilling contract, and cable tools will be used. Vimy Oils, Ltd., has contracted for its No. 1 test to be drilled on a 20-acre tract north of the United lease, and is moving in equipment. Madison Oils' No. 3, LSD 7, Section 24-20-3w5, is working on cellar. Madison's No. 4 has been spotted in LSD 9, Section 3-21-3w5. Freehold Oil Corp.'s No. 1, SW, Section 3-21-3w5, is reported drilling at 2,600 feet after straightening a crooked hole. Model Oils' No. 1, LSD 8, Section 22-20-3w5, is drilling at 4,440 feet after cementing off cavings.

Structure Oil & Gas Co.'s No. 1, LSD 7, Section 31-19-2w5, is rigging up. Structure's No. 2 has been spotted in the Central Field, in LSD 6, Section 12-20-3w5, and work will be started at once. Vanalta Oils, Ltd., has been organized with office at Calgary and A. G. Clarke as managing director, to develop acreage in Section 34-30-3w5. This test will be drilled by Calmont Oils, Ltd., and will spud in about June 15. Vanalta Oils' No. 2 will be drilled in the Milk River district.

Southern Foothills

In the Southern Foothills, Imperial Oil's Highwood No. 1, LSD 3, Section 36-18-3w5, on the Highwood structure, got the Madison limestone at 4,227 feet, and is cementing 4½-inch casing at 4,229 feet. This test is being drilled by Imperial on acreage of the Highwood Petroleum and Natural Gas Co. The latter owns 5,600 acres on a southerly extension of the Black Diamond structure, similar to the Turner Valley. Unlike the Turner Valley, no commercial production was met in the upper horizons. This is the first test to reach the lime in the Highwood area, and the next 200 feet of drilling may open an important new field. The test was started with cable tools, drilled through a fault in the upper formations, and had to straighten a crooked hole; it is being finished with a diamond outfit. Officers of the company are: President, A. W. Dingman; vice president, Ivan H. Crooks; secretary, C. L. Dingman; directors, E. Harvie, F. R. Webster, W. A. Ackland.

A syndicate headed by D'Orsey P. McDaniel has leased around 4,000 acres on a new structure in the Highwood Valley, west of the Turner Valley Field. No. 1 test will spud in about July 1, with a 12-inch hole, location being on a high point of the structure where production is expected at shallow depth.

Baymar Oils, Ltd., has been incorporated with office at Calgary to test acreage of the Rice-Jones Syndicate on the Ghost River structure. No. 1 test has been located in NW, Section 5-26-6w5, to spud in this summer.

On the Waite Valley structure, Harland Petroleums, Ltd., of Calgary has spotted a test midway between Richfield Petroleums' No. 1 and Cartier Oil Co.'s No. 1. Organizers are Joseph Henry Peshak, Thomas J. Noble and Alfred P. Harland, all of Calgary. In the Moose Mountain district, Signal Hill Oil Co.'s No. 2, LSD 9, Section 34-23-5w5, is drilling below 2,700 feet. The company has secured 80 acres more from the Moose Mountain Oil Co. Elbow Oils' No. 1, LSD 11, Section 35-22-5w5, has resumed drilling after cementing 15½-inch casing in the lower Bentons at 736 feet. A Calgary syndicate has filed on 10,000 acres on a new structure along Nose Creek, northwest of Calgary.

Morley Reserve Area

In the Morley Reserve area, Melbourne Oils' No. 1 is drilling in the lower Benton shales at 2,050 feet with further traces of oil. Wabash Oils' No. 1 is drilling at 2,116 feet. Norcon Oil Co.'s No. 1 is drilling below 100 feet. Gold Coin Oils' No. 2 is reported ready to spud in. Kamorley Oils is rigged up ready to spud in. Chiniki Oils' No. 1 is rigging up. Model Oils has spotted its No. 2 test on a Dakota sand exposure, expected to bring the Madison lime within 2,000 feet of the surface and is starting work.

On the Sinclair structure, Warner Oils' No. 2, LSD 4, Section 28-18-3w5, is reported spudding. Warner's No. 1, same LSD, started last fall some 700 feet north and east of No. 2 with a 20-inch hole will be let stand at 189 feet till No. 2 is finished. Norcon Oil Co.'s No. 2, LSD 3, Section 28-20-4w5, is working on derrick. Richfield Petroleum's No. 1, NW Section 35-20-3w5, is working on derrick.

In the Pincher Creek district, Southern Foothills, Alberta Gas & Fuel Co.'s No. 3, Section 11-6-2w5, on Drywood Creek, is reported abandoned. The company is continuing core drilling operations. Weymarn Oils, Ltd., is rigging up Mount Royal's No. 1, LSD 4, Section 7-6-1w4, which will be carried down from the present depth of 1,000 feet.

In Aldersyde district, south of Calgary, Ranchmen's Gas & Oil Co.'s No. 1, LSD 16, Section 13-20-29w4, is reported drilling in a tight sand below 3,400 feet, with casing 20 feet behind the drill. The shales overlying this sand showed oil saturation. The horizon has been identified as the Fernie shales, and the test is expected to get the Madison lime around 3,500 feet. Some 3 miles southwest of High River town, High River Oilfields' No. 1, LSD 6, Section 34-18-29w4, is rigged up ready to spud.

In the Champion district, Hudson's Bay-Marland Oil Co.'s No. 1, Section 9-16-23w4, is drilling below 200 feet.

Skiff Field

In the Skiff Field, southern Alberta, Imperial-Devenish's No. 3, LSD 11, Section 11-5-14w4, is at 3,079 feet and on the pump, but no production figures have been made public. Dauntless Oils' No. 1, LSD 9, Section 36-6-15w4, is assembling equipment for its rotary test. Lion's Gate Oil Co. of Vancouver is assembling equipment for a cable tool test in SE Section 33-6-15w4. Bugle Oil Co. of Winnipeg has taken over a block of 2,000 acres in township 3-11w4, to start drilling within a year. The acreage has been core drilled.

In the Chin district, Lethalta Oils' No. 1, LSD 5, Section 33-8-18w4, shut down last fall at 2,300 feet, will be finished this summer. Milk River Oils, Ltd., has secured adjoining acreage in Township 2-11w4 and will drill tests. Lethbridge Petroleums, Ltd., is getting ready to core drill its acreage west of Lethbridge. Another syndicate, composed of southern Alberta and southeastern British Columbia men, has filed on more than 10,000 acres on the Blood Reserve structure north of Lundbreck. East of the Blood Reserve, Benton Oils, Ltd., of Calgary has 4,306 acres, chiefly in Township 8-22w4 and is arranging for development. Officers are: President, W. T. Henry, Edmonton; vice president and managing director, Isaac Saunders, Calgary; directors, William V. Brockway, Cayley; Dr. Donald McLaughlan, Charles Knight, J. G. Wright, G. S. C. Cara, Calgary; Hugh Miller, Irricana.

Milk River District

In the Milk River district, Commonwealth Petroleums' No. 1, LSD 9, Sec-

tion 9-3-15w4, is drilling near 2,000 feet after sidetracking a lost bailer. The top of the lime is looked for at 2,700 feet, with possibilities at higher levels.

In the Cypress Hills' district, southeastern Alberta, Cyhill Exploration Co., Ltd., is preparing to drill two tests on its 2,000-acre tract. Eagle Butte Oil Co.'s No. 1, LSD 3, Section 31-7-4w4, is being deepened to the lime from the big gas horizon at 3,340 feet. Eagle Butte's No. 2 will start with a rotary outfit. Ajax Oil & Gas Co. of Toronto has secured 1,500 acres and will drill this summer. Texas Oil Co. has a geologist working in southern Alberta with headquarters at Lethbridge.

In the Calgary-Foothills area, London-Alberta Oil Lands syndicate of Calgary has filed on 10,000 acres in Townships 24 and 25, Ranges 1 and 2w5. On the New Black Diamond structure, Cameron Petroleums' No. 1 will be drilled in Section 36-20-3w5.

Wainwright Field

In the Wainwright Field, east central Alberta, Wainwell Oils' No. 2 is installing a special control head to secure the oil production, previously held back by heavy gas pressure. An oil sand underlying the gas has been cored for 9½ feet. Admiral Oils, Ltd., has let contract to L. B. Boggs of Ardmore, Okla., for its No. 1 well in LSD 16, Section 36-44-7w4, offsetting Wainwell's No. 1, to start work June 15. Mr. Boggs will bring several outfits to Alberta for work this summer. Admiral Oils' No. 2 will be drilled on the Black Diamond structure, southern Alberta, offsetting the New Black Diamond test.

Shareholders of Western Consolidated Oils, Ltd., held their annual meeting at Edmonton recently, when the following officers were elected: President, A. B. Palmer; vice president, H. A. Magoon; secretary-treasurer, Harry O. Patriquin; directors, A. C. Cameron, C. R. Woodside, H. W. B. Douglas, A. Morley Grigg, John F. Maloney, George A. Robinson, Robert Spencer. Western Consolidated acreage in the Wainwright Field is to be developed on a royalty basis by companies represented by J. L. Daugherty.

In the Ribstone Field, eastern Alberta, Ribstone Oils' No. 2, LSD 5, Section 2-47-1w4, is 300 feet in the lime at 2,530 feet, and fishing for a lost bit. Meridian Oils' No. 1, LSD 1, Section 16-45-1w4, which last fall got a large gas flow, estimated 30,000,000 feet, is reported to show a marked decline in pressure, and will likely be drilled deeper.

Northern Alberta

In northern Alberta, Waterways Oil Co., Ltd., has been organized by Edmonton men to develop 4,700 acres in the Clearwater district adjoining the Von Weymarn holdings. Those interested include K. A. McLeod, John Gainer, Dr. F. A. Keillor, Col. F. C. Jamieson, John H. Molstad, A. E. Nickerson. In the same area Von Weymarn Brothers' No. 1, Section 2-89-3w5, shut down last fall at 500 feet, after getting a show of oil at 430 feet in a lime formation.

Fort Norman Wells

Announcement has been made that Imperial Oil, Ltd., has sold the production of its two Fort Norman wells, in the far north, to the Hudson's Bay Co., which will build a small skimming plant to produce gasoline for motor fuel, kerosene for lighting and a fuel oil residue. Imperial Oil, Ltd., started actual development work in the Fort Norman area about 10 years ago, in the early stages of its western development campaign; following geological work done for a western syndicate in 1913-14 by Dr. T. O. Bosworth. In all, the company drilled 5 wells below Fort Norman, of which three were off structure, and two secured a fair production. A sixth well, drilled by the Fort Norman Oil Co. of Toronto, finished dry. The two Imperial producers had an aggregate production between 100 and 150 bbls. a day, and indicated the existence of a small field, in which comparatively small producing wells could be secured at fairly shallow depth. Owing to the heavy cost of transportation development work was discontinued. The production, refined locally by the Hudson's Bay Co., will probably eliminate the need of bringing in petroleum products. It is understood Imperial Oil, Ltd., retains its acreage and ownership of the wells, merely contracting to dispose of the production.

In Manitoba, A. C. McIntosh and associates of Winnipeg are preparing to drill a deep test near Ochre River, where shallow drilling has encountered some traces of oil.

Ontario

In Ontario, representatives of the crude oil producers of the Petrolia and other fields, headed by I. Greenizen of Petrolia, recently waited on the advisory tariff board at Ottawa, in support of an application for restoration of the government bounty of 1½ cents per imperial gallon formerly paid on crude petroleum produced in Canada. The application was supported by the Crude Petroleum Association of Canada, Ontario Lands & Oil Co., Canada Crude Oil Producers, Ltd., and individual operators.

The application showed that prior to 1904 a tariff had been imposed against imported crude oil. In that year, to assist the Canadian refining industry, crude oil was placed on the free list; but the Canadian operators were compensated by the government bounty of 1½ cents per imperial gallon, representing the equivalent of the duty. In spite of declining production and by dint of great economies the industry, with this assistance, has been able to carry on.

The discovery of oil fields in the Canadian West, and the prospect of heavy and overwhelming bounty costs to the government led the latter, in 1925, to finally discontinue the bounty. The Alberta production is, however, almost entirely crudes and naphthas too light to qualify under the terms of the bounty act.

The Petrolia and other fields have already produced between 20,000,000 and 25,000,000 bbls. of oil, and Dominion geological experts claim there are still 80,000,00 bbls. in the field. The sand is, however, very retentive, and the wells are exceedingly small pumpers; but in time the greater part of this production could be secured. If the smaller wells are not kept producing, the larger wells are in turn affected, it is claimed. Some $3,000,000 of capital is invested, and several communities, including Petrolia, are practically dependent on it.

CALIFORNIA FIELDS

(Continued from Page 55)

existing production as it has several wells nearing completion. The Pacific Western Oil Co., which acquired the holdings of the Petroleum Securities last year, is reaming No. 5 Willett preparatory to setting a string of casing for an early test. This well, in the extreme southern part, will be the deepest producer in the Ventura Avenue Field if commercial production is secured.

The Richfield Oil Co. is running a combination oil string preparatory to making a production test of its No. 1 Hobson in the Rincon Field of Ventura County and the outcome will be watched because of its importance on the future. A rather promising oil sand has been cored although water may prove troublesome. Two abandonments were listed, the General Petroleum abandoning No. 1 Oland and the Petroleum Exploration Co. quitting No. 1 Hawkins, the latter having been carried down to 6,651 feet. The Barnsdall is rotating in No. 1 Elwood Acres in a red shale at 5,601 feet with nothing of importance logged since passing through Vaqueros. This project, a little over 5,000 feet east of the discovery well in the Elwood Field, has been in the Sespe formation for some time. The Barnsdall, which is developing the Elwood structure in conjunction with the Rio Grande, is rotating in No. 5 Doty at 1,600 feet and is making hole in No. 7 Bell at 2,310 feet. Both wells should be finished within 30 days unless the bit is stopped above the pay to keep daily production down to a minimum.

SOUTHWEST WILDCATS

(Continued from Page 51)

Amphion, in Atascosa County, went into some gas, also some oil, at 2,000 feet even. Both were showing in bubbles. The log seemed to be running a little high. The location is 20 miles from any wildcat.

Petty Petroleum Co. of San Antonio has sold a half interest in its block of acreage at Bloomington in southern Victoria County to the Houston Oil Co. under a drilling contract to start drilling in 90 days. The geophysical equipment was used over the acreage.

Starr County

Ohio Oil Co.'s No. 1 Bass, Porcion 76, Block 71, is drilling. U. S. Oil & Gas Co.'s No. 1 Kelsey, Porcion 76, Block 11, located 1,500 feet north line and 500 feet west line, is standing at 900 feet. The Texas Company's No. 1 V. C. de Guerra, Porcion 68, Share 92, located 600 feet east line and 6,280 feet south lines, is drilling at 2,850 feet.

Webb County

G. S. Lumpkin's No. 1 H. Yeager, Porcion 33-34-35, Block 17, is location 1,170 feet east line and 150 feet south line. L. W. Nelson's No. 1 Moglia, Survey 672, located 150 feet east line and 2,584 feet south line is testing at 2,580 feet. Usher Carson's No. 2 Benavides, Survey 1,613, Block 11, 150 feet north and west lines, is standing at 1,005 feet.

Zapata County

William Muchelroy, Jr.'s No. 1 Trevino, Survey 412, Block 25, is drilling at 1,100 feet. National Oil Co.'s No. 1 Don B. Adams, Section 11, Block 4, is in hard rock at 615 feet. John Pappas' No. 1 Cuellar, Porcion 33-34, Block 5, located 333 feet northeast lines, 194 feet southeast lines, is drilling at 1,300 feet.

Atascosa County

Amphion Oil Co.'s No. 1 Sam Schlisser, Farm B, 300 feet northeast lines, 600 feet southeast lines, is drilling at 2,000 feet.

Bastrop County

Gypsy Producing Co.'s No. 1 Lottman estate is drilling at 2,567 feet. Gulf Production Co.'s No. 2 W. N. Bee, Riley Survey, is a location on west central part of lease. Harper & Mitchell's No. 1 Riley Mitchell is building derrick. Howell Oil Corp.'s No. 1 Wichman, 2 miles from Page is setting 32 feet of 10-inch surface casing. E. W. Ogden's No. 2 M. M. McCall, Stephen F. Austin Survey, 50 yards west of No. 1, is drilling at 2,760 feet.

Bexar County

Balcones Oil Corp.'s No. 1 F. A. Jackle, Alexander Bailey Survey, located 300 feet north and west lines is drilling at 200 feet. Humble Oil & Refining Co.'s No. 2 Oppenheimer, J. M. Urregas Survey, located 300 feet north of No. 1 is still fishing. Indian Creek Oil & Gas Co.'s No. 1 W. Wolfsohl, J. A. Navarro Survey No. 5, located 180 feet west of CEL is taking steel line measure and recementing at 1,597 feet. W. M. Morgan's No. 1 H. L. Martin, located 200 feet east line and 155 feet north line, is drilling at 852 feet. Moore-Jauer's No. 1 Holly R. Ellison, T. York Survey, located 2,916 feet to east line and 1,500 feet to south line, is standing at 1,198 feet. J. Morgan Russell's No. 1 G. A. C. Halff, city limits of San Antonio is location. B. L. Raborn's No. 1 Englemann, John James Survey, located 300 feet south line and 600 feet east line, is standing at 1,715 feet.

Blanco County

C. W. Bates' No. 1 Herman Massey, Henry Manton Survey, located 920 feet north line and 660 feet east line, is standing at 214 feet. Robert A. Rodson's No. 1 Glasscock, Survey 50, located 150 feet from CEL, is standing at 962 feet with showing of oil. Forbes & Winans are making location on block adjoining Johnson City.

Brooks County

A. W. Dinn's No. 1 Salado, La Mestena Survey B-5, located center Block 5, is location. Houston Oil Co. of Texas' No. 1 Lassiter, Survey 69, Block 11, located 330 feet south and east lines is moving on derrick. Milam Drilling Co.'s No. 2 Riley Allen, Block 89, is drilling at 890 feet.

Caldwell County

Alexander & Smith's No. 1 J. A. Cardwell, J. P. Bell Survey, located 150 feet south and west lines, is drilling at 1,460 feet in chalk. Magnolia Petroleum Co.'s No. 1 H. M. Lochman, Guadalupe College Survey, located 150 feet south and west lines is location. Russell's No. 1 Hill, McCullough Survey, is standing at 547 feet. Whittington and others' No. 1 J. G. Horner, Francis Berry Survey, at 1,320 feet is moving in larger rig.

Calhoun County

B. F. Thompson's No. 1 Thomas, John P. Tully Survey, 910 varas north and 5 degrees 30 minutes west of north corner of John C. Post Survey is to deepen from 2,748 feet.

Edwards County

A. M. Griffith's No. 1 Wardlaw, Section 60, Block V-8, located 1,050 feet west line and 150 feet south line, is drilling at 1,550 feet.

Fayette County

Marshall & Moore's No. 1 John A. Kerr, M. Muldoon League No. 5, located about 250 varas to north line and little west of center is drilling at 2,364 feet.

Gonzales County

Alexander & Smith's No. 1 Billings, G. Gwinn Survey, northwest corner, is drilling at 600 feet. Joe Bruner's No. 1 Miller, Richard Heath Survey, located 3,040 feet north line, 200 feet east line, is rat-tailing and coring ahead at 2,700 feet. Crown Petroleum Co.'s No. 1 Hattenbach, James Jones Survey, 900 feet east line, 200 feet south line, is drilling at 1,717 feet on very hard rock. W. D. Flynn's No. 1 Wilhausen, S. Bateman Survey, located east central part of lease, is standing at 5,212 feet. Finnell & Elam's No. 1 J. Robinson, 5 miles north of Waelder has been spudded in. Linderman Brothers' No. 1 F. H. Frampton, Richard Heath Survey, located 2,120 feet north line of creek and 1,930 feet east line of farm, is rigging up to run night and day; held up by heavy rains; total depth 1,000 feet. W. G. Malone's No. 1 D. G. Staton, J. M. Salinas Survey, located 375 feet southwest line and 1,275 feet northwest line, is shut down. Frank Sorrell's No. 2 Wilkerson, located 100 feet west of No. 1 at 174 feet had good showing before going into salt water.

Guadalupe County

A. G. Kiffer's No. 1 B. B. Dix, Ira Nash Survey, located 610 feet north of road and 320 feet east line, is standing at 1,050 feet. Grayburg Oil Co.'s No. 2 Sophie Haensel is location. Magnolia Petroleum Co.'s No. 1 Ed Adams, S. Highsmith Survey, located 150 feet from the center of the southwest line, is drilling at 1,954 feet. Miller Brothers' No. 1 Gib Springs, E. Cortari Survey, 450 feet west line and 775 feet south line, hit gas sand at 2,619 feet and is cleaning out. Hole caved 50 feet above. Eugene Sight's No. 1 C. Woehler, John King Survey, located 310 feet north line and 210 feet east line, is standing at 2,404 feet. Tidal Oil Co. is making location in the Williamson Survey. Noonan & Conner's No. 1 W. Weinaug has derrick up and is moving in machinery.

Karnes County

Hurador Oil Co.'s No. 1 W. E. Porter, located 6 miles south of Runge, is drilling at 1,543 feet. Scott Townsend and others' No. 1 Ruckman, 2,000 feet northwest of the southeast lines and 1,800 feet southwest of northeast line is drilling at 1,250 feet.

Kendall County

A. D. Gibb's No. 1 A. J. McCrocklin, 6 miles southeast of Sisterdale, is moving in and rigging up.

Kerr County

McMan Oil & Gas Co.'s No. 2 Walter Schriener is making location. L. R. Page and others' No. 1 Real, Block 15, Survey 2, at 890 feet is setting pipe.

Kimble County

Carl L. Bryant's No. 1 C. E. Lambert is moving in the machinery. H. A. McLean's No. 1 Cannon, Section 741, located 330 feet south and east lines, is drilling at 450 feet. J. B. Lindsay's No. 1 C. C. Anderson, Section 167, located 1,320 feet north and east lines is shut down after spudding in.

LaSalle County

J. G. Nix' No. 1 Coleman, Survey 68, Block 4, located 150 feet north line and 500 feet west line is rigging up.

Kinney County

Lloyd Oil Co.'s No. 1 G. Bedell Moore estate, Section 117, located 1,320 feet CNL, is shut down at 1,000 feet in Del Rio, hole full of water from 300 feet.

Mardon Oil Co.'s No. 1 Jim Clamp, Section 1,492, Survey 346, is shut down at 2,540 feet showing oil.

Maverick County

Rycade Oil Corp.'s No. 3 Chittim, Section 116, Block 7, is drilling at 3,627 feet; No. 4 J. M. Chittim, Section 104, Block 7, is drilling at 1,900 feet; No. 4 Sullivan, Section 112, Block 7, is down 1,300 feet drilling.

Medina County

Donaldson Oil Co.'s No. 2 Adams, Joe Hillemeyer Survey, located 1,000 feet northeast of No. 1 is location. Lynch and others' No. 1 Mott is standing. Rawdon-Hughes and others' No. 1 T. J. Benedele, Survey 593, located 600 feet west lines, 150 feet south lines, has resumed drilling; No. 1 A. L. Haegelin, Joseph Barnhart Survey, is drilling; No. 2 Benedele Survey 593, located 75 feet north of No. 1, is standing at 937 feet with showing of oil. Cecil Switzer's No. 1 Zerr at 3,500 feet is fishing. W. W. Woodworth's No. 1 Reinhart, J. Hall Survey, located 450 feet south and east lines, is reaming. Zigzag Oil Co.'s No. 1 San Antonio Subdivision Irrigation Farms, Inc., 4 miles northwest of Devine, is drilling.

Milam County

J. M. Burkhead's No. 1 C. Weigmann, A. Pollard Survey, located 1,075 feet north line, 450 feet west line, spudded in and shut down. E. L. Chapman's No. 1 J. M. Gilchrist, J. J. Acosta Survey, located 150 feet north and west lines, is drilling at 1,650 feet. H. E. Elliott's No. 1 J. C. Moore is drilling at 815 feet. Groneman Brothers' No. 1 Dornhoefer is down 2,580 feet drilling. Rogers & Heep's No. 1 J. B. Duncan, J. J. Acosta Survey, located 1,800 feet north line, 750 feet west line, is setting casing at 1,830 feet after taking heavily saturated core.

McMullen County

Matt Holman's No. 1 Shiner, Henry M. Brewer Survey, located 7,515 feet south of river, 3,084 feet east line, is shut down 790 feet.

Nueces County

Pearson and others' No. 1 Bluntzer is shut down at 3,507 feet. R. & G. Corp.'s No. 1 Perkins is standing at 3,510 feet; No. 1 Roberts is location; No. 1 Ragland is standing at 3,003 feet. Nueces River Basin Development Co.'s No. 1 Allen, Farrier Survey, is drilling at 3,135 feet. F. P. Zoch's No. 1 F. C. Allen, G. Farrier Survey, located 1,596 feet south line and 474 feet west line is drilling at 3,232 feet; No. 1 Baldwin, Block 21, located 150 feet north and east lines is setting casing at 2,400 feet.

Refugio County

Blanco Creek Oil Co.'s No. 1 St. John, J. Scott Survey, located 708 feet northwest lines, 3,074 feet northeast lines, is drilling at 3,300 feet with a showing of oil.

San Patricio County

Houston Gulf Gas Co.'s No. 3 Welder, north of Sinton is running surface casing. George B. Pickett's No. 1 Whitworth, NW NW, Section 60, is drilling at 3,240 feet in very hard sharp sandstone.

Victoria County

Humble Oil & Refining Co.'s No. 1-A Kohutex, S.A.&M.G. Survey No. 5, located 1,945 feet southwest lines, 900 feet northwest lines, is location; No. 1 G. Knape, Section 6, I.R.R. Co. Survey, is location; No. 1 G. F. Oliver, J. H. Poindexter Survey, located 2,489 feet southeast lines and 3,023 feet northeast lines is setting casing at 176 feet; No. 3-A Jay J. Welder, D.L.&C. Survey, located 1,634 feet southeast lines and 736 feet southwest lines, is drilling at 517 feet.

OKLAHOMA FIELDS

(Continued from Page 69)

9, made 100 bbls. in Dutcher sand 3,014-18 feet.

Garfield County

C. E. Knox's No. 1 Bangeter, NE cor. NW, Section 35-22-4w, has been abandoned at 2,350 feet.

Grant County

Amerada Petroleum Corp. made location for No. 1 Clark, NE cor. NW, Section 17-29-4w. Gypsy Oil Co. made location for No. 1 Gibson, NW cor. NE, Section 17-29-4w. Marland & Waggoner's No. 2 Frantz, SW cor. SE SE, Section 35-28-3w, has been completed for 10,000,000 feet of gas in sand 4,165-4,237 feet.

Jefferson County

Gypsy Oil Co. & Roy Johnson moved tools in for No. 1 Nesmith, NE cor. NW SE, Section 2-7s-7w.

Kay County

Harris & Haun and others' No. 2 School land, C NE NE, Section 36-28-1w, has been abandoned at 890 feet.

Kiowa County

Connor & Son's No. 2 Zacharias, SW cor. NW NW NW, Section 25-7-16w, is dry and abandoned at 805 feet.

Lincoln County

Magnolia Petroleum Co.'s No. 8 Sukovaty, SW cor. NE NE, Section 3-14-5, Davenport Pool is rigging up to deepen from 3,430 feet. Wheeler & Mote and others' No. 1 Wolfe, NW cor. NE SW, Section 2-16-5, is dry and abandoned at 4,124 feet. Texas Pacific Coal & Oil Co.'s No. 2 Long, NW cor. SE, Section 5-16-5, has been abandoned at 2,457 feet. Indian Territory Illuminating Oil Co.'s No. 1 Crane, NE cor. SW SW, Section 31-15-5, is a dry hole at 4,862 feet.

Logan County

Shell Petroleum Corp. made location for No. 9 McCully, SW cor. SE, Section 30-19-4w. No. 3 McCully, NW cor. NE SE, Section 30-19-4w, was completed for 1,678 bbls. in Wilcox sand 6,045-65 feet.

Muskogee County

C. W. Betz, trustee's No. 1-A Friday, CNL NE NE, Section 7-15-15, is rigging up. J. R. Parks moved a machine to the location for No. 1 Lovett, SWL SE NW, Section 21-15-15. Johnston and others' No. 1 Smith, SE cor., Section 13-13-18, is drilling at 130 feet.

Bryan Petroleum Co.'s No. 2 Simmons, SW cor. NW SW, Section 3-15-15, made a 12-bbl. well in sand 1,452-62 feet. No. 2 Barnett, SW cor. SE NE, Section 8-15-15, was completed for 20 bbls. in Wilcox sand 1,635-69 feet. W. C. Cushing's No. 1 Myers, SE cor. SW SW, Section 23-15-17, is dry and abandoned at 2,550 feet. Cook & Day's No. 1 Fields, CSL N half N half S half, Section 9-15-18. Dewitt & Baldridge's No. 1 Lee, NE cor. SE SW, Section 11-14-16, is dry and abandoned at 974 feet. G. H. Lowerre's No. 3 Brown, CNL NW SE, Section 5-13-16, has been abandoned at 1,818 feet.

Okmulgee County

Rounsaville Oil Co.'s No. 3 Tunley, CEL NW SE, Section 30-12-12, is drilling at 1,200 feet. Prince & Anderson's No. 1 Butler, SE cor. SW SW, Section 21-12-14, is cleaning out to deepen.

Okfuskee County

Independent Oil & Gas Co. made location for No. 1 McNac, NW cor., Section 33-12-10. E. L. Robinson and others' No. 3 Savers, SW cor. NW SE, Section 35-11-9, is a rig on the ground. Minnehoma Oil Co. has the rig up for No. 1 Grayson, NE cor. NW SE, Section 31-11-11. The Prairie Oil & Gas Co. made location for No. 1 Scott, SE cor. NE, Section 25-10-11. Producers & Refiners Corp. is moving the rig in for No. 4 Monarye, SW cor. SE SE, Section 29-12-10.

Champlin Oil & Refining Co.'s No. 12 Lewis, SW cor. SE, Section 15-11-11, made 125 bbls. from sand 3,474-88 feet. No. 4 Jefferson, C NW NW, Section 23-11-11, was completed for 5 bbls. in sand 1,607-83 feet. W. L. Umburn's No. 8 Simmer, SE cor. NE NE, Section 11-10-11, made 510 bbls. in sand 1,588-97 feet.

Osage County

Galt Brown Oil Co.'s No. 6 CSL N half NW, Section 7-24-8, is rigging up. Silurian Oil Corp. moved a machine to the location for No. 55, SW cor. NE NW, Section 17-23-12. J. H. Craig's No. 5, SW cor. NW NE, Section 8-22-11, is spudding. Oklahoma Natural Gas Corp. has the machine on the ground for No. 1,713, SE cor. NE SW, Section 10-21-10. Oklahoma Power & Water Co. has a machine on the location for No. 116, NW cor. SW, Section 28-21-10. No. 118, CNL NW SW, Section 10-20-10, is also a machine.

J. J. Fitzstephens' No. 1 NW cor. SW NE, Section 16-28-8, made 8 bbls. in sand 2,352-61 feet, after plugging back from 2,415 feet. Peters Petroleum Co. & Producers & Refiners Corp.'s No. 4, SW cor. SE, Section 22-27-11, made 125 bbls. in Bartlesville sand 1,638-61 feet. W. D. Gray and others' No. 1, SE cor. NE NE, Section 9-24-9, is dry and abandoned at 2,298 feet. Mid-Co Oil Corp.'s No. 1, SE cor. NE, Section 17-22-10, is dry and abandoned at 2,025 feet. Oklahoma Natural Gas Corp.'s No. 788, SW cor. NE NE NE, Section 15-21-10, has been abandoned at 1,736 feet. Red Bank Oil Co.'s No. 1, SE cor. NE NW, Section 11-20-10, has been abandoned at 2,315 feet.

Pawnee County

Peter Adamson made location for No. 13 Parker, SW cor. SE SE, Section 24-21-7. Location was made for No. 4 Parker, NE cor. SW SE, Section 24-21-7. No. 1-A Scully, NE cor. NW NE, Section 25-21-7, is also a location. Miller & Strattman's No. 1 Martin, SW cor. SE, Section 26-20-9, is dry and abandoned at 2,145 feet.

Payne County

Transcontinental Oil Co.'s No. 2 Powers, SW cor. NW NW, Section 10-18-5, is spudding.

Pittsburg County

B. C. Aylor's No. 1 Martin, SE cor. NW, Section 6-6-14, is dry and abandoned at 700 feet. No. 2 Margin, SE cor. NE NE SW, Section 6-6-14, has been abandoned at 850 feet.

Stephens County

Pace and others' No. 4 McMasters, NE cor. SE NW NE, Section 13-2s-8w, is drilling at 850 feet. No. 4 Bristowe, SW cor. NW, Section 18-2s-7w, is cementing pipe at 1,414 feet. No. 1 Watkins, NW cor. SE NW SE, Section 21-2s-7w, is a rig. Hedrick and others' No. 1 Thompson, SW cor. SE NW, Section 1-1-8w, has been abandoned at 2,511 feet. Beaver Oil Co.'s No. 1 Funk, SW cor. NW NE NW, Section 30-1-8w, is pumping 75 bbls. from sand 2,275-80 feet. Magnolia Petroleum Co.'s No. 8-M Green, SW cor. NW NW, Section 13-1s-4w, made 100 bbls. from sands 2,815-3,245 feet. No. 4 Peck, SE cor. NE, Section 13-2s-8w, made 90 bbls. in sand 1,338-48 feet.

Tillman County

Razor & Aikens' No. 1 Grooms, C NW, Section 10-1-17w, has been abandoned at 726 feet in granite.

Tulsa County

Nowata Oil & Refining Co.'s No. 4 Badray, SW cor. NE SE, Section 30-19-12, is dry and abandoned at 2,466 feet.

Wagoner County

Western Drilling Equipment Co. has a machine on the location for No. 1 Drake, SE cor. NE NE SW, Section 34-18-17. Ash Brothers' No. 1 Childers, SW cor. SE, Section 15-18-17, has been completed for 2,500,000 feet of gas in sand 800-809 feet. Wright & Kunkle's No. 2 Oliver, CSL NW SW, Section 3-16-15, is dry and abandoned at 1,181 feet.

Coal County

Galbreath and others' No. 1 Jones, SW cor. SE, Section 24-1-9, has been abandoned at 3,350 feet.

Hughes County

Independent Oil & Gas Co. & Mid-Continent Petroleum Corp.'s No. 1 McGirt, SE cor., Section 31-9-9, drilled to 3,558 feet, plugged back to 3,554 feet and flowed 120 bbls.

Oklahoma County

Indian Territory Illuminating Oil Co.'s No. 1 Fuzzell, SW cor. NW, Section 19-11-2w. Oklahoma City Pool which was shut in for 55,000,000 feet of gas at 4,022 is now rigging up to deepen. The Prairie Oil & Gas Co. & T. B. Slick's No. 1 Wilkins, C NE SE, Section 18-13-3w, has been abandoned at 5,130 feet.

The Prairie Oil & Gas Co. & T. B. Slick's No. 1 Wilkins, C NE SE, Section 18-13-3w, has been abandoned at 5,130 feet.

Pontotoc County

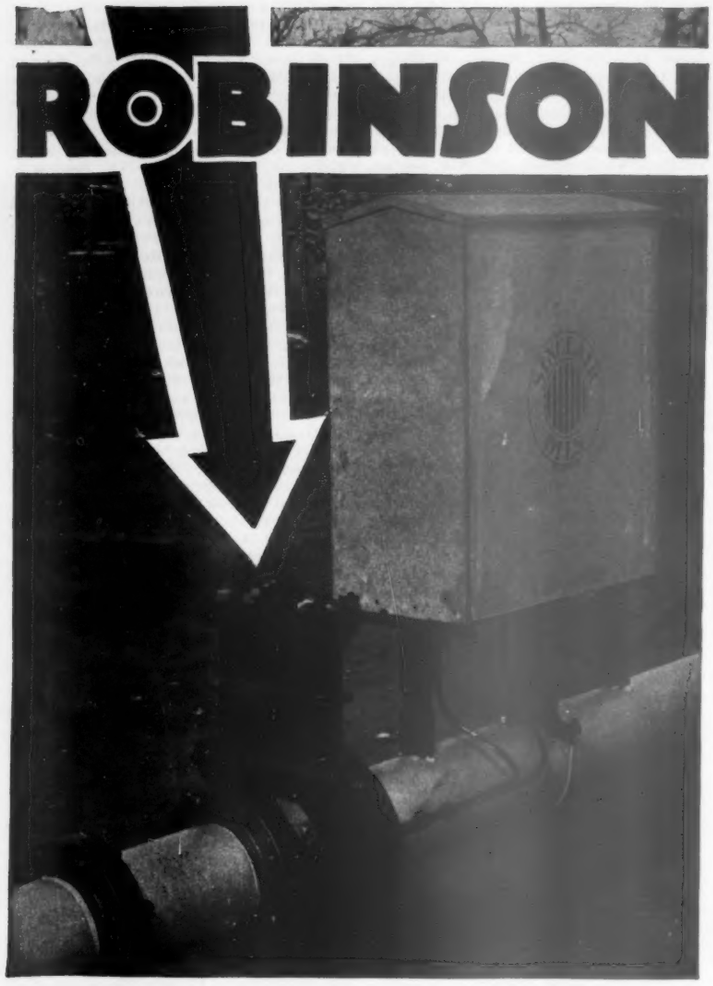
Transcontinental Oil Co. made location for No. 1 Bolen, SE cor. SW NW, Section 19-5-5. Belchic & Laskey's No. 1 Crabtree, C NW SE, Section 32-5-7, is preparing to deepen from 2,200 feet. Patsy Oil Co.'s No. 1-M Johnson, SE cor. SW SW SE, Section 31-4-7, is rigging up. American Oil & Refining Co.'s No. 1 Robertson, NW cor. NE SW, Section 19-5-5, Beebe Pool is pumping 165 bbls. from Viola lime 2,375-2,555 feet. Loual Drilling Co.'s No. 1 Bates, SE cor. NW, Section 36-5-7, made a 35-bbl. well in sand 2,274-81 feet.

Pottawatomie County

Cal Cul Oil Co. made location for No. 1 Wilson, NW cor. NE NW, Section 9-8-3. Magnolia Petroleum Co. & Gypsy Oil Co.'s No. 1 Smith, NW cor. NE, Section 20-8-5, is a rig under construction. Sinclair Oil & Gas Co. & McGraw Oil Co.'s rig is on the ground for No. 1 Kelly "A," NE cor. NW NE, Section 2-7-4, North St. Louis area. Magnolia Petroleum Co. made location for No. 3 Billington, NE cor. NW, Section 22-7-4, St. Louis Pool. The Prairie Oil & Gas Co. & Shaffer Oil & Refining Co. made location for No. 1 Cummings, NE cor., Section 17-7-4. Wilcox Oil & Gas Co. made location for No. 1 Perkins, SE cor., Section 12-6-3, Asher area. Clark & Cowden made location for No. 1 Asher townsite, center Block 1, Highland Addition, NW cor. SE, Section 18-6-4. Harry Morris has the rig up for No. 1 Asher Townsite, center Block 9, Highland Addition, SW cor. SE, Section 18-6-4. Skelly Oil Co. made location for No. 1 Watson, SE cor. NW, Section 18-6-4. Magnolia Petroleum Co. made location for No. 1 Coult, SW cor. NE, Section 18-6-4. Rush & Vaughn made location for No. 1 Asher Townsite, center Block 3, Highland Addition, SW cor. NW SE, Section 18-6-4. Sikes & Douglas moved the rig in for No. 1 Asher townsite, center Block 2, NE cor. SW, Section 18-6-4. Commerce Development Co. is building the rig for No. 1 Asher townsite, center Block 36, Asher proper, NW cor. NE NE NW, Section 19-6-4. Texola Oil Co. in building the rig for No. 1 Asher townsite, center Block 9, SE cor. NW NE SW, Section 18-6-4. Mid-Continent Petroleum Corp. has the rig on the ground for No. 1 Causey, NW cor. SW SW, Section 20-6-4. McCulloch Oil Co. & Carter Oil Co.'s No. 1 McDowell, NW cor. SE SW, Section 28-6-4, set surface pipe at 65 feet. The Prairie Oil & Gas Co. made location for No. 2 Bebee, NE cor. SE SE, Section 19-6-4. The rig is being built for No. 1 Wood, NE cor. NE SE, Section 27-7-6, Little River Pool. Sinclair Oil & Gas Co.'s No. 3 Calvin, SW cor. SE SW, Section 7-8-5, Maud Pool, made 225 bbls. from Hunton lime 4-145-89 feet. Phillips Petroleum Co.'s No. 2 Wallace, NW cor. SW, Section 17-8-5, swabbed 25 bbls. from Hunton lime 4,088-4,110 feet. Skelly Oil Co.'s No. 1 Wallace, SW cor. SE NW, Section 17-8-5, is dry and abandoned at 4,392 feet in Wilcox sand. Amerada Petroleum Corp.'s No. 3 Green, NE cor. NW NW, Section 20-8-5, swabbed 175 bbls. from Hunton lime 4,141-60 feet. Gypsy Oil Co.'s No. 1 Le Clair, NW cor. SW SE, Section 23-7-4, flowed 980 bbls. from Wilcox sand 4,255-83 feet. Magnolia Petroleum Co.'s No. 2-M Wilbarn, SE cor. NW SE, Section 24-7-4, made 400 bbls. from Simpson sand 4,230-82 feet. Magnolia Petroleum Co.'s No. 5-C Youts, SE cor. NE SW, Section 20-7-5, St. Louis Pool swabbed 300 bbls. from Simpsond sand 4,235-91 feet.

Seminole County

Shell Petroleum Corp. is moving the rig in for No. 1 Crump, SE cor. NE SW, Section 32-10-6. George E. Koonce has the rig up for No. 1 St. Louis townsite, SE cor. NE NW, Section 25-7-5. Gypsy Oil Co. made location for No. 4-K Payne, SW cor. SE NE, Section 5-7-7. Twin State Oil Co.'s No. 1 Marshall, SE cor. SW NW, Section 7-6-8, is underreaming 6-inch casing at 3,234 feet to deepen. Amerada Petroleum Corp. & Burk Greis Oil Co.'s No. 1 Grounds, SE cor. SW SE, Section 23-9-5, is dry and abandoned at 4,365 feet. Barnsdall Oil Co.'s No. 2 Jackson, NW cor. NE NE, Section 5-9-6, Earlsboro Pool, pumped 23 bbls. from 4,225 feet. Magnolia Petroleum Co.'s No. 2 Fee, NW cor. NE, Section 11-8-5, Carr City Pool, swabbed 1,000 bbls. from Wilcox sand 4,460-62 feet. Empire Oil & Refining Co.'s No. 6 Gluck, NE cor. NW SE, Section 11-8-5, made 474 bbls. from Wilcox sand 4,173-84 feet. Shaffer Oil & Refining Co.'s No. 3 Weaver, SE cor. NE NE, Section was completed for 520 bbls. in Wilcox sand 4,343-52 feet. Twin State Oil Co.'s No. 2 Ripley, NW cor. SE NE, Section 12-8-5, Mission Pool, flowed 409 bbls. from Wilcox sand 4,-



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204-09 feet. Minnehoma Oil Co.'s No. 4 Neal, SW cor. NW NW, Section 7-8-6, made 140 bbls. in Wilcox sand 4,264-67 feet. Carter Oil Co.'s No. 3 Factor, NE cor. SE NW, Section 26-7-6, Little River Pool, made 20,000,000 feet of gas in sandy lime 3,121-29 feet. Independent Oil & Gas Co.'s No. 2 Carpenter, SE cor. NE NE, Section 27-7-6, swabbed 92 bbls. from sand 3,161-68 feet.

The Prairie Oil & Gas Co.'s No. 4 Melton, SE cor. SW NW, Section 6-8-6, Mission Pool, has been completed for 1,340 bbls. in Wilcox sand 4,234-41 feet. No. 2 Owens, NE cor. NW NE, Section 18-8-6, flowed 590 bbls. from Wilcox sand 4,480-87 feet. No. 9 Billington, NE cor. NW SW, Section 11-8-5, Carr City Pool was completed for 500 bbls. in Wilcox sand 4,153-63 feet.

Production of St. Louis Pool

Production of St. Louis Pool by companies and leases for May 23 follows:

S.T.R.	Company, farm—	Wells	Bbls.
16-7-4	Atlantic-Indep., Burke	1	700
30-7-5	Barnsdall, Stahl	3	875
5-7-4	Blackwell-Omar, Cherry	3	795
16-7-4	Darby, Youngblood	1	416
25-7-4	Gypsy, Bruno	4	145
25-7-4	Gypsy, Collins	4	490
26-7-4	Gypsy, Dodson	4	160
23-7-4	Gypsy, LeClair	4	3,045
26-7-4	Gypsy, Roseman	3	783
30-7-5	Gypsy, Stahl	8	2,758
14-7-4	Home Gas, Town Lot	1	337
17-7-4	Houston Oil, Wyatt	1	821
30-7-5	Independent, Blandin	5	717
19-7-5	Independent, Youts	8	11,065
23-7-4	Inter-Ocean, McGee	6	305
26-7-4	I.T.I.O., McGee	1	0
2-7-4	Irwin-Martin, Kelly	1	0
18-7-5	Magnolia, Brandenburg	5	2,181
26-7-4	Magnolia, Cherry-A	5	1,040
26-7-4	Magnolia, Cherry-B	3	220
26-7-5	Magnolia, G. W. Fyke-A	1	840
20-7-5	Magnolia, G. W. Fyke-B	2	468
20-7-5	Magnolia, Tull Fyke-B	2	1,050
29-7-5	Magnolia, Tull Fyke-D	2	42
19-7-5	Magnolia, Hembree	4	1,484
17-7-4	Magnolia, Lattimer	1	870
15-7-4	Magnolia, J. M. Robbins	4	250
24-7-4	Magnolia, Mary Wilborn	2	495
24-7-4	Magnolia, S. A. Wilborn	5	936
20-7-5	Magnolia, Chas. Youts	5	759
19-7-5	Magnolia, C. A. Youts	4	560
25-7-4	McCullough-Blackwell, Bruno	5	1,110
25-7-4	McCullough-Mid-Continent, Smith	6	775
25-7-4	Mid-Kansas, Getzleman	4	1,275
30-7-5	Mid-Kansas, Lunay	3	555
25-7-4	Phillips, Cherry	2	155
30-7-5	Phillips, Stahl	4	832
25-7-4	Prairie, Desmond	4	200
25-7-4	Prairie, Ellison	4	310
30-7-5	Prairie, Gammon	8	3,660
19-7-5	Prairie, Hembree	4	4,185
30-7-5	Prairie, Linn	4	690
29-7-5	Prairie, Wolfe	4	3,485
19-7-5	Prairie, Youts	4	313
18-7-5	Prairie et al, Davis	4	167
18-7-5	Prairie, Maud, Nesbit	2	375
26-7-4	Pure, Dobson	2	185
26-7-4	Pure, Thomas	4	11,360
23-7-4	Shaffer, Cherry	4	180
30-7-5	Shaffer, Tolon	4	566
24-7-4	Sinclair, Blandin	13	1,810
7-7-5	Sinclair, Brandenburg	3	1,450
26-7-4	Sinclair, Bruno	2	3,505
25-7-4	Sinclair, Gilbreath	2	965
29-7-5	Sinclair, Nadash	5	520
25-7-4	Sinclair, Nealy	5	350
25-7-4	Sinclair, Nealy-B	2	250
18-7-5	Sinclair, Nesbit	8	2,520
19-7-5	Sinclair, O'Kitchee	7	440
25-7-4	Texas, Cherry	4	2,110
24-7-4	Westheimer-Daube, Freid	5	850
	Small pumpers	115	3,575
	St. Louis wells and production	355	91,512

PRODUCTION OF SEMINOLE AREA

Production of pools in the Seminole area by companies and leases for May 23 follows:

Little River Pool

Company, farm—	Loc.	Wells	Prod.
Amerada:			
Nitey	2-7-6	3	470
Amerada-Wilcox:			
Fore	35-8-6	2	640
Barnsdall:			
Cotcha	23-7-6	2	595
Hotulke	22-7-6	2	165
Walker	4-7-6	1	26
Blackwell:			
Baker	11-7-6	4	1,230
Nitey	35-8-6	5	205
Talley	14-7-6	4	700
Bryan & Emery:			
Walker	4-7-6	1	13
Carter:			
Cotcha, M.	23-7-6	3	135
Cudjo, L.	23-7-6	2	145
Fish	36-8-6	4	625
Harjo, C.	11-7-6	3	2,780
Harjo, M.	13-7-6	4	950
Jackson	11-7-6	4	990
Larney-B	26-7-6	1	490
Larney	24-7-6	4	2,292
Lena	10-7-6	1	775
Moore	11-7-6	2	195
Tewee	14-7-6	6	865
Thomas	11-7-6	1	155
Wilson	12-7-6	1	300
Champlin:			
Tewee	14-7-6	2	823
Continental:			
Cosar	36-8-6	7	1,046
Cosar, M.	25-8-6	1	388
Continental & Fisher:			
Milsey	11-7-6	2	475
Empire:			
Charty	24-7-6	1	98
Coker	13-7-6	2	617
Cotcha	27-7-6	1	129
Sandlin	3-7-6	1	15
Gypsy:			
Brown, C.	33-8-6	2	375
Brown, M.	33-8-6	1	935
Campbell	33-7-6	2	17
Conard	22-7-6	2	248
Cosar, M.	26-8-6	2	225
Cotcha	23-7-6	9	4,307
Denmark	11-7-6	4	1,463
Hulhoke	14-7-6	10	1,210
Mungee	1-7-6	1	175
Payne	5-7-7	1	0
Pattey	35-8-6	4	875
Renton	11-7-6	3	132
Independent:			
Carpenter	27-7-6	2	1,429
Davis, R.	13-7-6	4	1,420
Tewee	14-7-6	6	1,125
Williams	15-7-6	1	420
Independent & Highway:			
Harris	23-7-6	8	1,540
Independent & White Eagle:			
Davis	2-7-6	4	525
I.T.I.O.:			
Campbell	1-7-6	1	123
Dungan	35-8-6	3	420
House, M. A.	1-7-6	1	77
House, W. E.	1-7-6	1	10
House-B	2-7-6	4	705
Hull	26-8-6	3	102
Jackson	1-7-6	3	754
McCulla	1-7-6	3	770
Nitey	2-7-6	6	135
Phoebe-A	36-8-6	2	37
Phoebe-B	36-8-6	3	75
Reed	1-7-6	1	2
Soketheche	1-7-6	3	409
Magnolia:			
Cruse	2-7-6	4	152
Denby	11-7-6	4	264
Harjo-A	14-7-6	2	30
Harjo-B	14-7-6	2	208
Pattey	35-8-6	4	0
Reed, E.	31-8-7	1	28
Reed, I.	22-7-6	3	400
Marland & Shaffer:			
Harrison	4-7-7	1	397
McCulloch & Sands:			
Harrison	4-7-6	1	0
Mid-Continent:			
Brunner	11-7-6	4	130
Eleck	23-7-6	1	15
Smith	5-7-7	4	8,290
Wadsworth	36-8-6	7	310
Hoyecha	26-8-6	7	1,618
Pine-Phillips:			
Pattey	35-8-6	1	210
Prairie:			
Chilcoat	25-8-6	3	490
Coker	1-7-6	1	350
Dungan	35-8-6	1	0
Gibson	14-7-6	5	1,545
Harris	14-7-6	4	560
House	2-7-6	4	140
Johnson	24-7-6	2	1,340
Lustey	5-7-7	2	105
Moppin	24-7-6	2	140
Reed	13-7-6	2	1,000
Talley	14-7-6	4	740
Thomas	5-7-7	1	28
Williams	15-7-6	2	510
Wood	26-7-6	2	410
Prairie & Amerada:			
Sunny	14-7-6	5	1,230
Prairie & Pine:			
Coker	1-7-6	1	392
Cudjo	26-7-6	2	810
Pure:			
Brinson	34-7-6	3	1,346
Cotcha	14-7-6	10	2,489
Harjo	11-7-6	4	1,309
Hollins	11-7-6	1	127
Reiter-Foster:			
Bunyard	14-7-6	4	515
Jefferson	31-7-6	1	12
Shaffer:			
Narcombe	36-8-6	2	192
Shell:			
Caesar	11-7-6	1	49
Glass	26-7-6	1	0
Hotulke	23-7-6	4	494
Jeffries	32-8-7	1	0
Johnson	13-7-6	4	2,045
Sinclair:			
Blanton	11-7-6	1	267
Cosar	30-8-6	3	985
Haney	13-7-6	1	95
Tewee	14-7-6	2	1,450
Sinclair & Kingwood:			
Pompey	24-7-6	1	195
Skelly:			
Carl	14-7-6	2	1,376
Snowden-McSweeney:			
Tiger	13-7-6	2	465
Superior:			
Potulka	31-8-6	1	0
Soketheche	1-7-6	1	5
Texas:			
Brooks	25-8-6	1	20
Coker	1-7-6	3	95
Janey	11-7-6	6	1,340
Texas & Independent:			
Hotulke	23-7-6	4	1,200
Hotulke	22-7-6	2	0
Tidal:			
House	1-7-6	2	295
Johnson	1-7-6	1	24
Twin State:			
Lowe	25-8-6	1	90
Total		335	76,682

Carr City Pool

Company, farm—	Loc.	Wells	Prod.
Barnsdall:			
Coker	11-8-5	5	3,930

(Continued on next page)

Company, farm—	Location	Wells	Prod.
Fife	14-8-5	2	40
Carter:			
Coker	2-8-5	1	2,215
Empire:			
Cluck	11-8-5	9	5,076
Gypsy:			
Coker	10-8-5	1	167
Fife	14-8-5	1	18
I.T.I.O.:			
Simpson	10-8-5	1	0
Tully	10-8-5	1	0
Magnolia:			
Fee	11-8-5	2	782
Killing	14-8-5	1	7
Prairie:			
Billington	11-8-5	9	2,490
Mitchell	15-8-5	1	0
Sinclair:			
Bean	11-8-5	2	440
Harjo	11-8-5	3	1,278
Total		43	16,443

Maud Pool

Company, farm—	Loc.	Wells	Prod.
Amerada:			
Ballard	1-8-4	1	0
Fehlig	7-8-5	2	205
Gossland	8-8-5	3	295
Gravel	1-8-4	1	20
Hallum	1-8-4	4	2,285
Amerada & Barnsdall:			
Wallace	17-8-5	3	400
Amerada & Hull:			
Green	20-8-5	3	215
Darby:			
Ketcham	19-8-5	1	14
Empire:			
Smith	8-8-5	1	1,162
Gypsy:			
Bourassa	7-8-5	4	75
Miller	18-8-5	8	547
Independent:			
Harding	18-8-5	5	150
I.T.I.O.:			
State	16-8-5	1	0
Laurel O. & G.:			
Billington	18-8-5	3	115
Magnolia:			
Billington	8-8-5	4	172
Green	20-8-5	1	258
Marland & Shell:			
Everett	18-8-5	2	173
Mid-Continent:			
Shelton	18-8-5	3	40
Phillips:			
Hudson	19-8-5	4	415
Wallace	17-8-5	2	194
Pine:			
Lingefelt	18-8-5	2	60
Smith	8-8-5	1	664
Prairie:			
Campbell	18-8-5	8	150
Prairie & White Eagle:			
Villines	20-8-5	1	40
Pure:			
Lindly	18-8-5	8	331
Urbansky	19-8-5	2	92
Wiley	8-8-5	4	1,598
Sinclair:			
Bellars	19-8-5	10	770
Calvin	7-8-5	2	302
Lewis	6-8-5	2	105
Skelly & Lenox:			
Green	20-8-5	1	255
Skelly & Margay:			
Lingefelt	18-8-5	4	235
Texas:			
Calvin	7-8-5	8	585
Tidal:			
Dunn	12-8-4	1	55
Everett	18-8-5	2	150
Smith	8-8-5	1	180
Twin State:			
Calvin	7-8-5	2	210
Wilcox:			
Smith	8-8-5	3	954
Total		118	13,471

Mission Pool

Company, farm—	Loc.	Wells	Prod.
Amerada:			
Rice	5-8-6	2	1,225
Carter:			
Fuswa	18-8-6	4	1,562
Melisse	9-8-6	1	980
Micco	8-8-6	2	95
Darby:			
Judy	1-8-5	1	88
Gypsy:			
Baby	6-8-6	1	17
Barkus, N.	6-8-6	10	9,400
Barkus, S.	7-8-6	1	222
Dosar	7-8-6	5	1,507
Hardy	7-8-6	7	1,498
Harjoche	7-8-6	4	218
Micco, L.	8-8-6	2	35
Micco, S.	8-8-6	1	90
Mission	5&6-8-6	7	3,740
Mosar	1-8-5	4	890
Independent:			
Lawson	1-8-5	6	1,847
Independent & Kistler:			
Payne	7-8-6	4	3,190
Marland:			
Maines	7-8-6	4	1,176
McMahon and others:			
Harjo	7-8-6	2	652
Mid-Continent:			
Ripley	13-8-5	1	320
Mid-Kansas:			
Moore	7-8-6	1	30
Minnehoma:			
Neal	7-8-6	4	986
Pine:			
Harjo	6-8-6	2	297
Micco	8-8-6	1	28
Prairie:			
Crain	7-8-6	1	297
Melton	6-8-6	3	2,210
Micco	5-8-6	1	10
Townsend	6-8-6	1	165
Prairie & Gypsy:			
Owens	18-8-6	2	100

Company, farm—	Location	Wells	Prod.
Prairie:			
Nellie	12-8-5	1	565
Shaffer:			
Weaver	12-8-5	2	1,717
Pure:			
Weaver	12-8-5	1	10
Shell & Marland:			
Herndon	7-8-6	2	685
Shell & Papoose:			
Maines	7-8-6	8	2,670
Sinclair:			
Hardy	7-8-6	4	2,329
Sinclair & Lenox:			
Judy	1-8-5	1	88
Tidal:			
Nelly	12-8-5	5	2,735
Twin State:			
Hayes	8-8-6	2	1,810
Judy	6-8-6	2	1,350
Ripley	12-8-5	2	940
Total		115	47,694

Bowlegs Pool

Company, farm—	Loc.	Wells	Prod.
Amerada:			
Roscoe	15-8-6	7	690
Atlantic:			
Baker	10-8-6	4	375
Fleet	22-8-6	3	110
Grayson	13-8-6	4	463
Jones, A.	16-8-6	2	0
Jones, C.	9-8-6	1	62
Barnsdall:			
McNac	28-8-6	1	24
Murrow	11-8-6	4	362
Carter Oil:			
Bowlegs	15-8-6	4	350
Burden	23-8-6	2	245
Harjoche	14-8-6	6	550
Hilly	23-8-6	3	185
Jones	11-8-6	4	475
Walker	15-8-6	4	422
Wise	23-8-6	11	1,507
Dixie:			
Culley	11-8-6	1	75
Empire:			
Lacy	14-8-6	6	290
Wise	23-8-6	2	155
Gypsy:			
Bowlegs	22-8-6	1	0
Bradley	9-8-6	1	8
Cumsey	10-8-6	4	370
Grayson	13-8-6	4	352
Harjoche	10-8-6	3	520
Jones	11-8-6	1	0
Walker	15-8-6	7	775
Wise	23-8-6	2	160
I.T.I.O.:			
Barnett	24-8-6	2	193
Barnett-B	23-8-6	1	0
Billington	22-8-6	4	242
Bowlegs	22-8-6	9	1,569
Davis	13-8-6	4	135
Fay	13-8-6	9	1,297
Goforth	15-8-6	12	1,198
Livingston	15-8-6	10	1,582
Lizzie	13-8-6	3	435
Walker	15-8-6	8	638
Williams	12-8-6	1	199
Wilmott	15-8-6	4	297
Work	24-8-6	1	15
Youngblood	24-8-6	2	92
Magnolia:			
Davis	13-8-6	3	441
Davis, M.	13-8-6	1	101
Hammond	10-8-6	8	658
Rhodes	12-8-6	5	480
Van Buskirk	9-8-6	4	540
McCulloch:			
Bowlegs	22-8-6	2	147
Mid-Continent:			
Baker	10-8-6	4	131
Smith	12-8-6	6	630
Minnehoma:			
Bowlegs	15-8-6	3	123
Prairie:			
Gahagan	23-8-6	3	250
Harber	10-8-6	8	1,700
Jones	3-8-6	1	40
Jones	11-8-6	4	310
Templeton	12-8-6	5	1,985
Whitney	23-8-6	4	355
Pure Oil:			
Reed	14-8-6	14	2,522
Strother-D	11&14-8-6	4	393
Strother-F	10-8-6	7	2,468
Shaffer:			
Lacy	14-8-6	3	395
Shell:			
Taylor	16-8-6	5	55
Sinclair:			
Cumsey	10-8-6	4	830
Ellen	11-8-6	5	710
Harjo	14-8-6	3	757
Jones	9-8-6	7	355
Taylor	10-8-6	4	685
Taylor, W.	10-8-6	3	566
Walker	22-8-6	4	957
Texas:			
Reed	14-8-6	11	695
Tidal:			
Grayson	13-8-6	4	400
Harjoche	10-8-6	6	915
Total		306	37,001

Seminole Pool

Company, farm—	Loc.	Wells	Prod.
Amerada:			
Fixico	23-9-6	3	75
Killingsworth	23-9-6	4	504
Rentie	23-9-6	3	392
Atlantic:			
Cudjo, N.	35-9-6	3	505
Barnsdall:			
Carter	24-9-6	6	221
Henry	14-9-6	2	491
Jones	34-9-6	4	535
Carter Oil:			
B. Carter	24-9-6	2	50
F. Carter	23-9-6	3	75
Creamer	34-9-6	1	7
Cudjo, R.	35-9-6	4	80
Cudjo, W.	34-9-6	1	122
Gilliland	27-9-6	1	140
Grisso	23-9-6	4	200

Company, farm—	Location	Wells	Prod.
Grisso, M.	15-9-6	1	200
Killings, G. F.	14-9-6	4	35
Killings, M. E.	23-9-6	12	4,745
Knapp	13-9-6	1	45
Lukes	27-9-6	5	925
Pounder	34-9-6	2	180
Simpson	35-9-6	2	142
Strothers	34-9-6	4	250
Vierson	23-9-6	1	30
Empire:			
Gross	25-9-6	2	46
Wilson	34-9-6	2	312
Gypsy:			
Butler	35-9-6	4	397
Carter	24-9-6	8	755
Cudjo	34-9-6	4	605
Fixico	26-9-6	7	75
Harjo	25-9-6	3	500
Wolfe	26-9-6	5	376
Independent:			
Fixico, P.	23-9-6	3	475
Harjo	25-9-6	2	70
Butler	35-9-6	3	800
Fixico, T.	26-9-6	5	352
Jones	26-9-6	4	276
I.T.I.O.:			
Allen	25-9-6	2	43
Bowlegs	26-9-6	12	2,130
Goodin	23-9-6	4	287
Harjo	23-9-6	3	45
James	24-9-6	2	108
Reed	24-9-6	1	8
Kingwood:			
Johnson	22-9-6	3	448
Magnolia:			
Boren	2-8-6	1	4
Franks	25-9-6	3	272
Mid-Continent:			
Rentie	14-9-6	9	490
Tayeche	24-9-6	7	175
Phillips:			
Strothers	27-9-6	2	75
Prairie:			
Cudjo	35-9-6	3	612
Franks	35-9-6	6	745
Giblet	35-9-6	3	1,385
Gross	25-9-6	5	30
Mason	36-9-6	1	55
Spencer	13-9-6	1	7
Strothers	27-9-6	8	2,345
Tiger	1-8-6	1	34
Pure Oil:			
Strothers	26-9-6	17	5,003
Strothers-B	36-9-6	4	665
Strothers-C	34-9-6	1	382
Shell:			
Harber	22-9-6	1	209
Lesley	22-9-6	2	36
Sinclair:			
Carter	13-9-6	2	22
Cudjo-A	35-9-6	6	717
Cudjo-B	35-9-6	4	610
Dicey	22-9-6	2	460
Fixico	23-9-6	4	460
Superior:			
Cudjo	35-9-6	4	135
Noble	15-9-6	1	0
Texas:			
Mayhue	14-9-6	1	230
Strothers	2-9-6	1	75
Tidal:			
Carter	24-9-6	4	290
Fixico	26-9-6	7	1,414
Harjo	25-9-6	1	15
Harjo, T.	23-9-6	3	48
Turman:			
Cudjo	35-9-6	4	510
Grisso	35-9-6	1	33
Jones	34-9-6	4	1,297
Total		276	36,898

Searight Pool

Company, farm—	Loc.	Wells	Prod.
Amerada:			
Johnson	4- 9-6	1	28
Strothers	3- 9-6	2	280
Barnsdall:			
Jackson	5- 9-6	2	43
Carter:			
Davis	4- 9-6	3	490
Frazier	3- 9-6	6	880
Skiff	10- 9-6	1	85
Kiker	2- 9-6	1	17
I.T.I.O.	11- 9-6	1	690
Mandler	3- 9-6	2	5
Jackson	10- 9-6	1	0
Scott	26-10-6	1	12
Stewart	10- 9-6	1	840
Carter and others:			
Strothers	11- 9-6	1	950
Slick	11- 9-6	1	165
Gypsy:			
Cudjo	4- 9-6	3	690
Nevins	32-10-6	1	833
Magnolia:			
Varnum	32-10-6	2	1,088
Mid-Continent:			
Grayson	34-10-6	4	35
Saloche	33-10-6	6	595
Mid-Continent & Homaokia:			
Nevins	32-10-6	4	1,535
Pine:			
Lula	4- 9-6	1	18
Prairie:			
Cannon	33-10-6	1	2
J. Carter	10- 9-6	1	3
Houch	33-10-6	1	4
Hurford	33-10-6	1	125
Kincaid	33-10-6	2	60
Wimer	22-10-6	1	15
Pure:			
Aldridge	3- 9-6	4	1,003
Shell:			
Strothers	3- 9-6	4	194
Sinclair:			
Polly	3- 9-6	4	1,600
Superior:			
Varnum	4- 9-6	1	0
Texas:			
Fleet	4- 9-6	1	20
Twin States:			
Varnum	4- 9-6	2	100
Wilcox:			
Chupco	4- 9-6	7	219
Total		74	302,433

Earlsboro Pool

Company, farm—	Loc.	Wells	Prod.
Amerada:			
Anderson	15- 9-5	2	288
Cowden	4- 9-5	7	891
Rogers	3- 9-5	2	86
Atlantic & Gypsy:			
Delaware	13- 9-4	1	0
Atlantic & Sinclair:			
Foreman	18- 9-5	1	105
Barnsdall:			
Brown	10- 9-5	3	1,281
Bruner, F.	2- 9-5	2	161
Bruner, N.	10- 9-5	3	267
Cudjo	14- 9-5	1	47
Davis, D.	11- 9-5	3	388
Davis, J.	11- 9-5	4	1,489
Davis, M.	11- 9-5	2	33
Gibson	9- 9-5	7	917
Hern	15- 9-5	1	1
Ingram	1- 9-5	7	276
Pack, S.	10- 9-5	4	98
Peter	10- 9-5	3	49
Sango	1- 9-5	2	1,307
Sebalka	15- 9-5	1	210
Sullivan, H.	11- 9-5	1	5
Sull-Harjo	10- 9-5	2	19
Wasutke	12- 9-5	3	742
Burke-Greis:			
Wisner	6- 9-6	2	470
Burke-Greis & Red Bank:			
Mays	1- 9-5	3	1,940
Carter:			
Davis	13- 9-5	3	170
James	6- 9-6	3	1,705
Carter and others:			
Gilliam	13- 9-5	2	1,340
Continental:			
Kays	2- 9-5	2	20
Spencer	12- 9-5	4	646
Cosden, J. S. Inc.:			
Anderson	13- 9-5	1	2,102
Empire:			
Barker	12- 9-5	1	30
Edmondson	3- 9-5	2	60
Empire & Marland:			
Anderson	13- 9-5	1	422
Empire & Amerada:			
Bullock	8- 9-5	2	1,350
Gypsy:			
Bruner	10- 9-5	4	1,727
Carter, B.	11- 9-5	7	2,357
Earl	16- 9-5	1	0
Hunick	5- 9-5	2	1,775
Lottie	31-10-6	1	27
Noble	12- 9-5	4	987
Peter	10- 9-5	1	112
Sango	1- 9-5	13	2,270
State	16- 9-5	3	197
Independent:			
Bruner	10- 9-5	3	200
Sullivan	10- 9-5	1	12
Knapp	8- 9-5	3	1,701
Independent-Margay:			
Gains	11- 9-5	3	210
Magnolia:			
Anderson	18- 9-6	1	48
Bryant	9- 9-5	6	49
Cowden	4- 9-5	2	22
Dixon	12- 9-5	1	14
Edmondson	3- 9-5	1	0
Germany	30- 9-5	1	21
Gilliam	13- 9-5	2	2,788
Holmsley	11- 9-5	6	16
Hyde	13- 9-5	2	355
Ingram	10- 9-5	1	15
Lena	10- 9-5	3	42
Moore	24- 9-5	1	1,176
Seay	12- 9-5	9	325
Simpson	10- 9-5	4	253
Sparks	11- 9-5	6	140
Sullivan	12- 9-5	3	10
Mid-Continent:			
McCumber	9- 9-5	7	30
Rogers	5- 9-5	2	1,375
Mid-Kansas:			
Anderson	14- 9-5	1	35
Phillips:			
Dunaway	14- 9-5	1	20
Prairie:			
Baker	24- 9-5	5	1,605
Davis	13- 9-5	3	425
Graham, C.	3- 9-5	2	10
Graham, O.	10- 9-5	4	840
James	6- 9-6	2	30
Stidham	11- 9-5	9	1,125
Prairie & Skelly:			
Campbell	6- 9-6	6	3,000
Prairie & Whitney:			
Harjo	24- 9-5	1	30
Shaffer:			
Clark	1- 9-5	3	277
Shell:			
Bayless	17- 9-5	1	10
Hearn	13- 9-5	1	117
Spencer	12- 9-5	2	1,510
Sinclair:			
Alexander	36-10-5	1	1,105
Foreman	18- 9-5	1	15
Hollins	12- 9-5	1	20
Miller	24- 9-5	1	27
Sango	2- 9-5	4	1,650
Skelly:			
Mays	1- 9-5	4	1,298
Shepard	6- 9-6	4	1,499
Spencer	12- 9-5	1	150
Skelly & Atlantic:			
Cherry	6- 9-6	4	460
Lottie	6- 9-6	4	1,812
Superior:			
Ingram	1- 9-5	2	734
Walker	2- 9-5	2	1,382
Texas:			
Anderson	2- 9-5	8	130
Brown	10- 9-5	8	90
James	6- 9-6	2	235
Rogers	5- 9-5	5	1,100
Wilmott	10- 9-5	6	90
Tidal:			
Walker	35-10-5	3	1,600
Watkins	9- 9-5	7	1,965
Twin States:			
Barker	12- 9-5	2	45
Hern	2- 9-5	2	70
Total		306	61,710

Oil Industry Construction News

LONE STAR BEGINS BIG PROGRAM OF EXPANSION

An expansion program involving expenditure of more than $2,000,000 is announced by the Lone Star Gas Co. from its principal offices in Dallas, Tex. Extension work includes more than 200 miles of new pipe line, two large new compressor stations, remodeling of a gasoline plant damaged by fire, construction of at least two new buildings by two of the distributing companies, and building of a 24-mile telephone line, besides maintenance and repair work.

The largest item is the 20-inch line from Petrolia, Tex., to Fort Worth and Dallas. This line will have a capacity of 100,000,000 cubic feet daily. Preparations for building it are under way. Surveys have been completed, the right of way is being purchased and negotiations are on for the purchase of pipe and other supplies.

The next most important item is a line from Desdemona, in Eastland County, to Sipe Springs, in Comanche County, Texas. This will be a 16-inch line 24 miles long connecting with wells in the field near Sipe Springs, and will be the beginning of further expansion in that territory. To accompany the line there will be constructed a 24-mile telephone system, giving direct communication from this new territory to the main office.

The pipe line will feed gas into the system at Desdemona and in connection with it, a compressor station is planned at Sipe Springs. This station will be about 2,000 horsepower. The line and compressor station are now under construction.

In the same locality another improvement is planned in the construction of a 10-inch line from the company's plant No. 4 at Ranger to connect with the Superior Oil Co.'s gasoline plant in the Moran district.

The rebuilding of the Gordon gasoline plant, which was damaged by fire in February, is another improvement in the same section.

LINE TO POSO FIELD

LOS ANGELES, Calif., May 25.—Southern Oil & Gas Co. is preparing to lay 24 miles of pipe line in Poso Creek-Round Mountain district. Company has acquired 510 acres in the district, with 3,000 bbls. daily production. Engineers are surveying for the pipe line, which will be the second in this field. General Petroleum Corp.'s 8½-mile line to Kern Front was opened May 1, and if the second line is constructed it will mean transportation for practically all the oil now shut in, between 20,000 and 25,000 bbls. daily.

According to John Sandburg, president of Southern Oil, one of the major companies has contracted to purchase its production.

MONTANA GAS LINE

CASPER, Wyo., May 25.—A gas line to Malta and Glasgow and serving the towns of Hinsdale and Saco, Phillips and Valley counties, in eastern Montana, is in prospect. The Montana-Dakota Power Co. has stated that this line hinges on the outcome of the present wildcat drilling on the Bowdoin Dome.

WHITE EAGLE REFINERY

The White Eagle Oil & Refining Co. of Kansas City, Mo., will enlarge its Casper, Wyo., refinery. The refinery at present has a capacity of 3,000 bbls. daily. The company recently secured additional crude oil supplies through purchase of the royalty oil from the Salt Creek Field.

NEW BRAUNFELS LINE

SAN ANTONIO, Tex., May 25.—Work has been started on the new 230-mile steel gas pipe line to be built by the Magnolia Gas Co. of Dallas from Bruni, Webb County, to San Antonio and New Braunfels, according to Fred M. Lege, president of the company. Mr. Lege said the line would have capacity of 125,000,000 feet daily and will be supplying fuel to the San Antonio Public Service Co. and other consumers in this territory by October 1. Previous announcement was that the line would be built from Mathis, San Patricio County, to San Antonio.

THREE NEW GAS LINES PROJECTED IN TEXAS

Three natural gas lines of importance are under consideration in Texas. The Houston Pipe Line Co. contemplates construction of a 15-mile line of 4-inch pipe to Blessing and Palacois from its Southwest Texas-Houston system main line, and a 10-mile line of 4-inch pipe to Angleton from the Bay City-Freeport line. The Moody-Seagraves interests propose to build a 14-inch line from Laredo, Tex., to Monterrey, Mexico, a distance of 141 miles, crossing the Rio Grande River at Roma, Tex.

Construction already has begun on the following natural gas lines in Texas: South Texas Pipe Line Co., 110 miles of 16-inch pipe from Refugio Field to Converse; Magnolia Gas Co., 60 miles of 20-inch pipe and 20 miles of 16-inch from Beeville to San Antonio; Murchison Oil Co., 10 miles of 16-inch pipe from Raccoon Bend Field in Austin County to Hempstead and Prairie View; Houston Pipe Line Co., 8 miles of 18-inch pipe, extending a loop on the main line between the Guadalupe River and the Colepa River at Victoria; Dixie Gulf Gas Co., 7 miles of 4-inch pipe from the Waskom-Houston system main line to Crosby.

REFUGIO-CONVERSE CONTRACT AWARDED

HOUSTON, Tex., May 25.—Contract for the laying of 110 miles of 16-inch line from the Refugio Field to Converse, near San Antonio, was let this week by the South Texas Pipe Line Co. to Smith Brothers, contractors, of Dallas, Tex. The line, which will have a capacity of 60,000,000 feet of gas daily, is being laid to increase the potential gas reserve for San Antonio and Austin. It not only will have as its terminus the Refugio Field but also will tap the new Bee district and other gas fields.

LINE FROM SAXET WELLS

SAN ANTONIO, Tex., May 25.—John La Prelle, of San Antonio, Tex., has presented a petition to the Commissioners Court of Nueces County, seeking permission to cross certain roads in Nueces County in bringing a pipe line from his gas wells in the Saxet Field west of the city to the city of Corpus Christi. The Saxet Gas Co. has a gas line running from the Saxet Field to Corpus Christi and is supplying the town.

BUILDING MACHINE SHOP

K. H. Adams, Calgary, manager of the Oil Well Supply Co., of Pittsburgh, Pa., has announced the erection of a machine shop at Black Diamond, Alberta, to serve the Turner Valley Field. Building and equipment will cost $100,000, and in addition to repair and finishing work, some manufacturing will be undertaken.

PIPE LINE CONTRACT FOR SHREVEPORT LINE

By B. E. V. Luty

PITTSBURGH, Pa., May 27.—Following letting of the pipe for the natural gas line to run from the Monroe Field, Louisiana, to Birmingham and Atlanta, reported a week ago, pipe has now been let for the line to run from the same field to Shreveport, La. This is a 20-inch line, Youngstown Sheet & Tube Co. to furnish 75 miles of ordinary fire welded pipe and the A. O. Smith Corporation, Milwaukee, to furnish 50 miles of electrically welded pipe. The total amount will run some 15,000 tons.

Pipe mills do not know of any other large natural gas piping projects on the boards at present, but consider it probable that some others will develop. Practically all the time for more than a year past there have been one or more projects actively considered and known to the pipe trade. Line pipe business now on books will give the pipe mills a fair degree of activity for their large lapweld furnaces for several months, while the Smith company seems to have its full capacity engaged for many months.

Demand for casing and other well material remains very poor. The pipe mills would not have much work for their lapweld furnaces were it not for line pipe. Demand for oil country goods is decidedly better in seamless than in welded but is far from good in seamless, the seamless tube mills being much better engaged in boiler tubes and mechanical tubing than in oil country goods.

Demand for standard or merchant pipe has shown little if any further seasonal improvement in the past 30 days. On the whole it is only slightly more active than early in the year. Jobbers seem to be fairly well stocked and they are ordering quite sparingly, chiefly in single carloads. Consigned stocks, while not large for the time of year as demand has gone in the past, are considered a trifle large for the present volume of distribution. From the standpoint of pipe this does not seem to be a particularly good year for building operations in general.

Pipe and tube mill operations are substantially the same as for a month past, at about 55 per cent for the pipe mills and about 70 per cent for the tube mills, making about 60 per cent for tubular goods in general.

The steel industry as a whole shows no decrease in production. There is practically full operation of open hearth steel making departments, and nearly full operation of Bessemer departments. The various finishing branches are running at various rates, some of them not receiving as much steel as they are calling for, but probably nearly all they can really use. Sheet and strip mills are operating full, tin plate mills nearly full, merchant bar mills at various rates, all high, and structural, plate and wire mills at lower rates.

Occasional reports are circulated of a falling off in the general volume of steel orders. These are probably correct to an extent, but some of them show signs of having originated more in theory than by actual scrutiny of figures, for now it is long past the time when the steel trade has regularly had seasonal recession for the summer. A better idea of the state of affairs is obtained by observing the anomaly than by trying to harmonize facts with theory. It is altogether abnormal for steel to be so active at this time of year and it has become reasonably clear that the usual summer lull will be omitted. There is virtually no time for it now. Of course a lull will come some time, but the chances are very strong that when a lull does come it will not be a summer lull, as to the time of occurrence, and will be more than a summer lull as to its length. Since the recovery, late in 1922, from the depression of 1921, steel has been very active right along except for a few brief periods of months. On top of this prolonged activity came a special bulge just about July 1, 1928, and the trade is still in that bulge. The recession now in prospect within a few months is a recession from that particular bulge, down to the general level of activity. This would leave steel quite active, but relatively less active.

Steel prices are showing no change.

GAS LINE PROJECT IN ROCKY MOUNTAIN AREA

A half dozen projects in natural gas line construction are either definitely announced or under consideration in the Rocky Mountain territory. A 65-mile line of 10-inch and 8-inch pipe is to be built by the Colorado-Wyoming Gas Co. from Englewood to Fort Collins, Colo. The Colorado Interstate Gas Co. will construct a line to Englewood and Littleton, Colo., from its main line 6 miles east of Englewood. The Hope Engineering Co. is said to be making preparations to build a line to Vernal, Utah, from a gas well 8½ miles from that town and to install a distributing system in Vernal.

The San Juan Valley Gas Co., recently incorporated in New Mexico, plans to build a natural gas line from Kutz Canon to Farmington. The Pecos Valley Gas Co. is reported to be getting ready to build lines from gas wells in Eddy County to Artesia, besides extensions of its lines to Lovington, Clovis and Portales. Several companies are reported to be working on plans for a line from Kansas into southeastern Colorado.

BIG NATURAL GAS LINE ONE-THIRD COMPLETED

The Truman-Smith Construction Co., of Eldorado, Kans., has completed about one-third of the pipe laying work in connection with a big natural gas system in central western Kansas and is preparing to finish the rest of the line, projected by the Western Gas Co., and the Western Pipe Line & Gas Co., of Salina. The Truman-Smith company already has laid 107 miles of 6-inch gas mains, connecting 13 towns of central Kansas with the system, which now is to be extended to Kinsley.

When the system has been completed it will represent an outlay of $3,000,000. The Western company's original gas well is north of Bison in Rush County. The line has gone north to Loreta, Pfeifer, Victoria, Walker, Gorham and Russell, west to LaCrosse, east and south to Otis, Olmitz, Hoisington, Ellinwood and Great Bend, and south to Timken and Larned. It will now be extended to Kinsley and intervening towns. With the discovery of a big gas well near Lewis in Edwards County recently, the line is projected to extend to towns in Edwards, Ford, Clark and Comanche Counties.

RICHFIELD CONSTRUCTS TANKS

The Richfield Oil Co. is erecting 10 large steel storage tanks at its Rioco, Calif., refinery. Other improvements are also being made, the expenditure totaling approximately $500,000.

The company will shortly start the construction of a new type cracking process at its refinery.

22 INCH *with* EASE *and speed*

The Seminole Pipe Handling Boom *and* The Seminole Hoist

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Tank Car Gasoline Moves Up in East

Prices a Cent a Gallon Higher Than Former Levels at Most Terminals. Indications Seen That Lub Market Is About To Ease Off

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, May 27.—Of outstanding importance in the East Coast refined products market this week has been a general advance in the market for tank car gasoline, bringing prices a full cent per gallon over previously prevailing levels at most terminals in this section. Standard Oil Co. of New Jersey led in the upward move and other principal marketers have already followed suit.

Less spectacular, but still of absorbing interest to many interests, has been the softening in the position of the lub oil market, with particular reference to cylinder stocks. While there has been no actual price break yet on these lub oils, indications are that the market is about due to ease off, and buyers generally are holding off in the anticipation of early downward revisions.

The remainder of the market has been rather quiet, although underlying conditions have been fairly steady in the main.

Higher gasoline prices throughout the area mark the start of the annual "spring drive," including consumption by motorists in the East, together with higher crude costs, being the basis for the price markup. In New Jersey territory the tank car market is now about evenly balanced with the basis prevailing on marginal contracts, both showing the jobber a net cost of about 11 cents per gallon, delivered. In New York the spot market is lowest.

While gasoline buying at the 10-cent level has been rather slow thus far, this is attributed to the fact that jobbers in most instances were covered over the entire month of May at 9 cents. June business at the higher price basis is already coming in, however, and the outlook for the market is materially stronger.

Some talk of a pending increase in tank wagon gasoline schedules has developed, following the jump in refinery prices. With consumption showing a steady increase and gallonage running ahead of 1928 totals with most large marketing interests, higher tank wagon prices within the next several weeks are regarded as almost a certainty in some sections.

Tank Car Gasoline

After more than a month, during which time variations of a quarter to a half cent per gallon have been prevalent in spot quotations for U. S. Motor in tank car lots, the market this week was stabilized at 10 cents per gallon at Bayonne and other East Coast terminals. Standard Oil Co. of New Jersey, which had previously been a quarter to a half cent under the prices quoted by other refiners, advanced its price a full cent to 10 cents per gallon late on May 21, thereby establishing the market at 10 cents.

All of the principal refiners and marketers in this area have followed in the upward move, with California U. S. Motor in at least one instance quoted at 10¼ cents per gallon. While jobbers had been buying more heavily, there was no intimation that a full cent increase was impending, and the advance caught many distributors off guard. As a result of the advance, inquiry slackened off a little for a day or so, jobbers running on their stocks of "gas" bought at lower levels, but demand has since revived and the past few days have witnessed a very heavy volume of trading. With the spread between tank car and tank wagon prices narrowing down, however, jobbers are beginning to operate in a larger way on their marginal contracts.

Further increases in the tank car basis in the near future, it is believed, will hinge to a large extent upon the action in the tank wagon market. In some quarters the recent action of Standard Oil Co. of New York in stabilizing tank wagon quotations throughout New York state, with the exception of the metropolitan territory, at a flat 15 cents per gallon, is taken as a forerunner of a general advance in tank wagon prices throughout the entire territory, but thus far there are no indications that any immediate increase is pending. The keener competition in tank wagon sales this season, it is said by some operators, will tend to hold gasoline prices down. Other operators, however, incline to the belief that a tank wagon advance is logical in view of the steady gasoline markets at refineries, and that early action along this line may be anticipated.

Heavy Drawing on Stocks

A constructive feature of the market this week was the publication of the monthly summary of refinery holdings by the American Petroleum Institute. According to this report, stocks of gasoline held at refineries east of the Rocky Mountains recorded a decline of 1,477,000 barrels in April. This reflects rather heavy drawing against stocks for so early in the season. The fact that this reduction was accomplished in the face of adverse weather conditions which retarded gasoline consumption over the greater part of the country is cited as an illustration of the firmer undertone which has developed in the gasoline markets during recent weeks.

Higher prices for crude oil in many of the principal producing areas have also tended to strengthen the gasoline market from a statistical standpoint and it is expected that refiners will further advance their price views as a result of their higher crude costs.

East Coast market interests are also keeping close watch on the export situation, which should be a potent influence during the summer months. Buying of gasoline and naphtha for shipment abroad has been rather sluggish during recent weeks, and this, in a measure, has been an important factor in retarding the usual seasonal advance in prices. The fact that export operators have been out of the market for so long a period, some refiners argue, indicates that stocks of gasoline held in distributing markets abroad are much smaller than usual and that the foreign trade may reasonably be expected to come into the market for very material quantities of both Navy and the higher gravities within the next month or so, to build up their depleted reserve stocks, as well as to take care of increasing consumption in their markets. The probable trend of export demand, therefore, is expected to develop as a major market factor within the next few weeks.

Tank Wagon Gasoline

Gallonage in the local market has recorded further gains this week and refiners and marketers look for continued increases until the peak of consumption is reached along in late July or August. The market here is well held at 17 cents per gallon by the leading refiners, making a price of 19 cents with the State tax. Retail gasoline of leading brands is quoted at 21 cents per gallon at most filling stations, although 20 cents is quoted in some sections. Small independent marketing organizations are retailing gasoline at from 18 to 19 cents per gallon at curb stations.

In the metropolitan New York territory, the market is now on a pretty firm basis at 15 cents, or 17 cents with tax. Some buying resistance developed at a few points to the recent general advance to the 15 cents basis in some up-State markets, but the subsequent markup in the tank car basis has broken down this opposition pretty thoroughly. Increasing consumption with its accompanying larger volume has also been an important factor in tending to stabilize the tank wagon market position.

Marketers operating throughout the entire territory report that consumption is opening up rapidly in the New England States. The sections of New England normally classed as "vacation" areas have come into the market for large supplies much earlier this year than in previous years, and gallonage thus far in these sections is running well ahead of comparable figures last year. The same is true of the southeastern section, sellers report.

While new marketers of national importance are in the local area this season, their entrance thus far has failed to cause any material disturbance of the market structure. Various refiners are stressing the improved quality of their gasolines this year, and it is indicated that competition will be upon this healthier basis, rather than the cut prices which have been utilized in the past.

The tendency of large interests to develop additional gallonage through the medium of their own retail outlets is growing in some instances in this territory, although a few marketers are making their heavy play for both wholesale and retail distribution through independently owned and operated stations.

Kerosene

Tank car movement showed a little improvement this week and the market for water white is steadier at 8 cents per gallon. It is reported in some quarters that a little business has been done at 7¾ cents, but all of the principal factors are holding at the 8 cents level. While weather conditions have shown marked improvement during the week, there have been a few cool days and kerosene is still being utilized for heating purposes. The market is now getting the benefit of the "in between" season. It is too warm to run furnaces during the daytime, and too cool to do without a little heat in the nights. Kerosene is naturally benefiting from this situation. Refiners are cheered over the outlook for export sales, business in this direction having picked up materially during the week.

The tank wagon market for kerosene is without change, holding at 15 cents per gallon throughout the local territory. Refiners report that sales volume in tank wagon distribution is running somewhat in excess of that for the comparable period last year and express the belief that a continued good demand for this oil will be experienced over the summer months. Kerosene stocks at East Coast refinery points are not excessive and appear to be concentrated in the hands of the stronger interests to a great extent.

Gas Oil

Steady markets for gas oil are reported in East Coast territory this week. The market for 32-36 recycled gas oil is held at a range of 5¼ to 5½ cents per gallon at refineries and consumption is holding up fairly well. Several of the large gas companies, which had been running on accumulated stocks, are reported back in the market for replacement supplies this week and this has tended to firm up the market position somewhat.

Lower grades of gas oil are selling all the way down to 4½ cents per gallon. There is still considerable consumption of this low grade oil for use in domestic oil burners and demand for this type of oil has been running into larger totals than refiners had anticipated, due largely to the backward season throughout the greater part of the Eastern area, which has made necessary the running of oil burners much later than in normal seasons.

Lubs

Signs of weakening have developed in the cylinder oil market but thus far no actual price declines are reported. Refiners are showing more willingness to book both spots and futures at current going prices, but are finding buyers unresponsive. Local jobbers, in most instances, appear convinced that lower prices within the next few weeks are inevitable, and they are holding off in anticipation of the break. Refiners are still talking firm prices and point to the A.P.I. report for April, showing a decline of 235,000 barrels in stocks of lubricating oil held at refineries east of the Rockies. The general firming-up in the position of crude oil is also cited by the refiners as justification for maintenance of current price levels on lub oils.

Foreign buyers, in most instances, have definitely withdrawn from the market for cylinder oils. In many instances these buyers are reported receiving sufficient stocks of cylinder oils against back orders to take care of their current requirements and the same is true to a considerable extent of the domestic compounding trade. However, with consumption increasing rapidly as the motoring season gets under way, it would appear likely that many eastern compounders will be urgently in need of additional cylinder oils in the near future.

There is continued quiet in red and pale oils here. Refiners report that demand for this oil is seasonably active but buying is still largely along routine lines.

Local marketers are getting a heavy demand for package lub oils. Prices quoted by most distributors are over those which prevailed at the start of the motoring season last year, owing to the high refinery basis now prevailing, but this does not appear to have affected demand. On the contrary, sales of package lubs in most instances are now running ahead of those for this time last year.

Fuel Oil

Bunker "C" remains steady at $1.05 per barrel at local terminals and $1.10 a barrel barged alongside within the harbor limits. Business with the larger steamship lines is well maintained and all of the principal refiners are firm at the listed price. The April refinery stock figures were far from encouraging, the A.P.I. report disclosing a gain of 3,733,000 bbls. of fuel and gas oils at refineries east of the Rocky Mountains. This increase is rather discouraging to those interests which have been consistently advocating a curtailment in production of heavy oils through a more general utilization of cracking equipment.

Notwithstanding the admitted over supply of fuel oil in some sections of the country, however, the local market position is fairly well maintained. From a competitive standpoint, the market is in good shape, and as long as this condition obtains, East Coast refiners feel little concern over the outlook for the near future with respect to this oil.

Diesel Oil

Marketwise, there is no change in the diesel oil situation this week. Prices hold unchanged at $2 to $2.10 per barrel, at terminals, with all principal sellers

(Continued on Page 143)

Practical Suggestions in Refining

By W. T. Ziegenhain

Faulty Foundations For Storage Tanks Cause Excess Loss

Storage losses in a plant are principally due to evaporation but an appreciable volume of oil is lost by leakage, unseen due to poor joints in the piping, corroded lines, strains in the tank bottom and lack of planning prior to installation. A concrete base of sufficient strength to support the tank without a chance of cracking and smoothed off to take the same shape of the tank bottom is the first requirement in safeguarding against future leaks. The kind of ground on which the base sets determines the thickness of the concrete base as well as the size of the tank to be supported. Oftentimes a tank is set on filled ground. This becomes of more general practice as expansion programs call for the utilization of all available ground. Filled ground seldom settles evenly and strains are sure to come and for this reason an extra thick reinforced base is needed.

Sometimes the tank must be set on sand. So long as the base is set below the surface of the ground, there is little danger of creepage of the sand. If by necessity the base is set on sand above the surface of the surrounding ground, a retaining wall or an embankment should be run around the base of the tank to keep the rain water from washing away the sand around the outside edge of the base.

In some instances, large tanks have been placed on very wet ground and it is impracticable to remove enough of the surface to reach a solid foundation because of the depth of the bog or wet sand. Under such conditions, it is preferable to "float" the tank foundation. This method has proven successful along water fronts for building foundations as well as tankage. In this case, the concrete base is poured of average thickness and reinforced so it will float as a continuous platform. Around the edge of the base a curtain wall or retaining wall is also poured and at the same time as the base, so as to form a cap. This wall is needed to keep the tank from squeezing out a part of the soft ground or wet sand under load which in turn would weaken the edges and in time cause a failure in the base. The wall must be of sufficient depth to safeguard against this but no set rule may be applied due to the fact the depth and thickness will vary with the load, the size of the base and the kind of ground supporting the base. The wall will not eliminate settling possibly but the "squeezing out" effect will come below the edge of the wall and will be far enough down and away from the tank base that a shifting of the earth foundation will effect all parts of the concrete base alike.

Another serious cause of leakage due to strains on tank bottoms is that of setting the tank above the frost line and connecting the tank to a pipe line set below the frost line, without providing for the expansion and contraction in winter and summer by the use of expansion joints. This is particularly true where several tanks are connected to the same line. The strains which will accompany the shifting of the tank elevation with the freezing and thawing of the earth are very evident and this factor is probably responsible for greatest loss of oil as pipe line leakage. Once the ground is covered over the pipe line, the losses occur unnoticed and because the pipes are covered, there is less care practiced regarding the manner in which they are laid and these two factors in themselves work very much in the opposite direction to good engineering and resultant economy in operation.

REFINERS' OPINIONS SOUGHT IN PROPOSED SPECIFICATION CHANGES

"What will be the attitude of refiners toward a proposed revision in the natural gasoline specifications," was a much discussed question at the convention of the Natural Gasoline Association of America, following G. G. Oberfell's report of the technical committee on the progress of the work. Mr. Oberfell, technical director for the Phillips Petroleum Co. and chairman of the committee said, "If natural gasoline is graded according to specifications which directly denote its value to the refiner and which more or less reflect the cost of manufacture, a desirable end will have been gained." In brief, the proposed changes include establishing five grades of natural gasoline. These will be classified principally according to volatility as indicated by a number derived from the results of a vapor pressure test and from the percentage distilling over at 100 degrees Fahrenheit. Gravity, endpoint, residue and distillation loss were not considered vital in judging the true value of the natural gasoline and subject to the opinion of the manufacturers and refiners, the committee is considering eliminating these. No mention was made of a change in the present specifications requiring the natural gasoline to be sweet and noncorrosive.

The method suggested whereby the grades may be divided according to volatility as denoted by a number simplifies the specifications and the procedure was explained by R. C. Alden, of the Phillips Petroleum Co. by use of an example. It was assumed, a certain gasoline had a vapor pressure of 28 pounds as taken by the Reid method and when distilled in accordance with the procedure of the A.S.T.M. showed 30 per cent off at 100 degrees Fahrenheit, including the total distillation loss which had been added. By arbitrarily multiplying the result of the distillation test by .7 ($30 \times .7 = 21$), and adding this to the result of the vapor pressure test which was 28, the result ($21 + 28 = 49$) of 49 is taken as the numerical expression of the volatility of that sample. The factor .7 as used in the example was arbitrarily taken and some such factor will have to be agreed upon. The value for volatility expressed as an equation is shown below:

$$\text{Volatility} = F \times V + P$$

where F = arbitrary factor
V = per cent distilling off at 100 degrees Fahrenheit
P = vapor pressure by Reid method

Assuming a specification of 50 is established as the maximum volatility for one of the grades, then if .7 is chosen as the factor, the sample of gasoline used in the example above will pass. If a factor of .8 is chosen, the volatility of this gasoline will be 52 and will not pass the specification and will have to be given a lower classification ($.8 \times 30 + 28 = 52$). From the above examples, it is apparent that the choice of the factor will be dependent upon an agreement regarding what relative importance exists between the vapor pressure result and the distillation result in calculating the volatility. This point remains open for further consideration and opinions are being sought.

As used in the equation, the percentage distilling over at 100 degrees Fahrenheit includes the distillation loss. Since the loss is included and in effect, penalizes the volatility result it was thought the present practice of reporting the distillation loss could be eliminated. On the other hand, some refiners have considered this figure as an index of the loss they would witness when storing any particular grade of natural gasoline and might not be ready to discard this in favor of the method of including it simply as one of the factors making up the number showing volatility. The arguments in favor of dropping the distillation loss in its present form in the revised specifications were strengthened with the fact the present A.S.T.M. distillation test for natural gasoline is not satisfactory and the distillation loss as shown by it is not indicative nor proportional to the actual loss through evaporation at the refinery or gasoline plant either when stored alone or in a blend. It was further pointed out that a revision of the present distillation test may result from the work being done by the A.S.T.M. in attempting to improve the present one for natural gasoline. Another question asked was, "How will the refiner know how much natural gasoline he will have to blend with his production to bring the blend up to a required gravity if he does not know the gravity of the natural gasoline he is buying." Similarly, some manufacturers and refiners contended it would be impracticable to expect to eliminate the endpoint due to the fact refiners use this means of judging whether a particular natural gasoline may be blended with their low endpoint grades and to approximate the change in the intermediate distillation points when blending a given amount of natural gasoline with their production. In the same discussion, the value of specifying a limit on the residue remaining in the flask after making the distillation test was questioned. It was pointed out that an excess of residue would indicate some of the absorption oil had got into the natural gasoline and would pass unnoticed on to the refiner to be blended into his gasoline. From a technical standpoint it was generally agreed the gravity specification, endpoint, per cent residue, and distillation loss were not vital in judging the value of natural gasolines for performance as motor fuels but must be recognized as having "merchandizing" value. If the refiner insists on buying his natural gasoline under certain specifications it will be to a distinct disadvantage to the sales department of the natural gasoline manufacturer if these data are not available. With this in mind, Dr. Lederer, chairman of the meeting suggested a joint meeting be held of the technical committee and a representative group of sales managers in arriving at a conclusion on this subject.

Storage Plan

Other subjects of interest to refiners included the storing of natural gasoline. A. J. Schlosser, general superintendent of natural gasoline plants for the Barnsdall Refining Co. said they were now cleaning an 80,000-bbl. ordinary steel tank previously in crude oil service in which they expect to store natural gasoline having a gravity of 88, an initial 68 to 70 and stabilized to have a recovery of 95 per cent. "This practice is new to the Mid-Continent Field and there was little on which to base an estimate of the evaporation loss to expect," Mr. Schlosser said. A water layer will be run over the bottom of the tank to eliminate losses in bottom leakage and a vapor breather system will be used but no other special provisions have been made to decrease the losses. The tank is relatively new and appears to be air tight. It was then stated that the Shell Petroleum Corp. had 55,000-bbl. ordinary steel storage tanks in natural gasoline storage service at the Gulf and the evaporation losses when storing about the same grade of gasoline as proposed by Mr. Schlosser, and held under 2 ounces of pressure, averaged less than 1 per cent per month over the year.

Another statement of interest to refiners was that of Dr. G. G. Brown, research director for the association and professor of chemical engineering at the University of Michigan, in which he said, "A 50 per cent blend of natural gasoline and a 450 endpoint naphtha is a better motor fuel for subzero weather than domestic aviation gasoline." His purpose was to emphasize the value of natural gasoline in satisfying the demands of easy starting, speedy acceleration, and all around satisfactory performance when blended in relatively high proportions with heavy gasolines or naphthas in contrast with the popular belief these conditions may be better met by using a low endpoint gasoline. This involved the relative values of the two classes of gasolines from the standpoint of their respective tendencies to cause crankcase dilution. This was answered or at least dispensed with by the statement that crankcase dilution up to 50 per cent dilution has been found to be of little consequence at the laboratories of the General Motors Corp. so long as the oil remained free of abrasive particles. Doctor Brown remarked that 20 per cent dilution was desirable for cold weather driving, 50 per cent satisfactory and no harm is likely if the dilution should reach 80 per cent. In the discussion of the use of the high endpoint naphtha blends as motor fuel G. G. Oberfell then said it had been his experience, the higher endpoint blends yielded less carbon residue in the engine. The question was then raised regarding gas lock and the use of high percentage blends was defended on the basis that the carburetor may be designed to utilize much lighter fuels and much lighter fuels could be used on even the present carburetors. For general guidance it was stated that so long as the vapor did not represent more than three times the volume of liquid gasoline reaching the carburetor, gas lock was not likely to occur.

Recent Patents

CRACKING PRESENCE OF METAL HYPOCHLORITES

1,713,252. Process of Treating Mineral Oils. Henry Blumenberg, Jr., Los Angeles, Calif. Filed October 24, 1927. Serial No. 228,503. 4 Claims. (Cl. 196-52.)

1. The process of treating mineral oils and their products comprising adding a metal hypochlorite in dry form thereto and subjecting the same to a cracking temperature to increase the lighter fractions by splitting up the heavier molecules of the mineral oil or product.

TREAT OILS WITH PHOSPHORIC ACID

1,712,960. Method of Refining Mineral Oils. Arthur Lachman, Berkeley, Calif., assignor to Richfield Oil Co. of California, San Francisco, Calif., a corporation of Delaware. Filed May 18, 1926. Serial No. 109,970. 3 Claims. (Cl. 196—39.)

1. A method of refining crude mineral oil, which comprises first treating the oil with sulphuric acid at a temperature above but approaching atmospheric temperature and decanting the oil from the acid sludge, secondly, treating the oil to a higher temperature, treating the oil with phosphoric acid and again decanting the oil to remove the acid sludge, and, third, neutralizing any remaining acid content and removing the neutralizing agent.

35 CENTS a line first insertion; 25c a line each additional insertion. Cash in advance.

CLASSIFIED WANTS

CREATE AND BUILD BUSINESS

MAIL your advertisement now. It will be published next week. Cash with order.

EQUIPMENT WANTED

WANTED TO PURCHASE—A light rotary rig complete with tools, less boilers. Box B, Wainwright, Alberta, Canada.

WANT TO BUY good solid leg wood Turnbuckle drilling rig. Might consider Tubular steel rig if priced right. Want derrick, all wheels, reels, sills, pulley, etc., but no tools. Address giving location, just what you can furnish and cash price loaded on cars. Box C-945, The Oil and Gas Journal, Tulsa, Okla.

WANTED—One second-hand Sweetland filter press. Address P. O. Box 1062, Dallas, Tex.

FOR SALE—EQUIPMENT

BOILERS FOR SALE

5—625 H. P. Geary Water Tube Boilers, Heine type, 200 lb., Taylor stokers. ash hoppers and overhead coal bunkers. Bargain for quick removal.

CONSOLIDATED PRODUCTS CO. INC.
17-20 Park Row, N. Y. C. Barclay 0600

REDUCE your Wiper costs by using White or Colored Cotton Waste. Costs less. More wiping surfaces. Also washed and sterilized Wiping Cloth and Wool Waste at reduced prices. Overnite shipping service. Manufactured by AMERICAN SANITARY WIPER & WASTE CO.
511-513 Broadway, Victor 2909-2910,
Kansas City, Mo.

FOR SALE—Two 14 x 24—150 H. P. Duplex D. A. Cooper Gas Engines direct connected to Hall Compressors, inter and after coolers, all in first-class condition. Priced right. Detailed description and price on application. CLARENDON GASOLINE COMPANY, 66 Main Street, Bradford, Pa.

BUY OR RENT USED PIPE
and Save the Difference
15,000'— 5⅝" Casing.
10,000'— 6⅝" Casing.
5,000'— 8¼" Casing.
5,000'—10" Casing.
1,000'—12½" Casing.
1,000'—15½" Casing.

We will rent this casing or any other pipe which you may need. Let us finance your operations by carrying your pipe and casing investment for you.
KEYSTONE PIPE & SUPPLY CO.,
Holmes Building,
Fort Worth, Tex.

NOTICE — FOR SALE—EQUIPMENT
Humble refinery—Standard Oil product cracking plant. Wilson Refining—tank, stills, pumps, agitators, boilers, pipe and connections. Will buy salvage plants or pipe lines.
W. BOGART,
Burkburnett, Tex. Phone 136

FOR SALE
USED OIL FIELD EQUIPMENT AND MOTORS
7—Westinghouse motors sixe 15/35 HP.
8—General Electric motors size 15/35 HP.
1—General Electric motor size 15 HP.
1—General Electric motor size 75 HP.
1—Ideal Electric motor size 5 HP.
Approximately 35,000 ft. of wire, 125 poles and other equipment.
THE SILURIAN OIL COMPANY
508 Wright Bldg., Tulsa, Okla.

FOR SALE, by owner; complete gasoline absorption plant, rated capacity eight million cubic feet, located Northern Oklahoma. This plant built in 1923 and well worth the money. For further particulars write or wire, Room 934, Mayo Building, Tulsa, Oklahoma.

FOR SALE—One 60-horsepower Pattin Brothers direct-driven engine and compressor complete, in first-class condition. For price and particulars address Lock Box 117, Lima, Ohio.

FOR SALE—One six HP Fairbanks Morse Gas Engine, direct connected to duplex 2½x4½ Fairbanks Morse Pump. Cost $540, good as new, will take half price. ATKINS SERVICE COMPANY, Box 366, Seminole, Oklahoma. Also Novo 6 HP pumping unit. $150.

FOR SALE—Eight-inch Landis Pipe Threading Machine, capacity 2¼ to 8 inches, belt drive, with large assortment of dies, nipple holders, etc.; $1,800 f.o.b. Chicago. Manning, Maxwell & Moore, Inc., 27 N. Jefferson St., Chicago, Ill.

FOR SALE—EQUIPMENT

EQUIPMENT FOR SALE OR LEASE
Pipe line equipment. Four Buckeye Ditchers, good shape, ready to go. J. A. Hazel, Enid, Okla.

FOR SALE, No. 2 National drilling machine, bailer, engine and tools complete. Good condition. Located near Mounds, Oklahoma. Frick-Reid Supply Corporation, Tulsa, Okla. Credit Department.

SPECIAL
5,500 ft. of 6¼" Natl. seamless A.P.I. 28-lb., 10 thread casing. Once run and in practically new condition.
The Grimes Pipe & Supply Co.
Denver, Colo.

NOTICE OF RECEIVER'S SALE

NOTICE IS HEREBY GIVEN, that the undersigned, C. J. Hunt, heretofore, and on the 24th day of April, 1929, appointed Receiver of the properties of the Invader Oil Corporation, located in the State of Oklahoma, by the District Court of Muskogee County, Oklahoma, in Case No. 21359, J. J. Culbertson, Jr., Trustee, vs. Invader Oil Corporation, a corporation, defendant, and under and by virtue of an order of said court made on the 10th day of May, 1929, will offer at private sale to the highest bidder for cash, the following described property, on and after June 7, 1929:

An oil and gas mining lease on and covering the North Half of the Southwest Quarter of Section 16, Township 14 North, Range 13 East, Okmulgee County, Oklahoma.

An oil and gas mining lease on and covering the South Half of the Southwest Quarter of Section 16, Township 14 North, Range 13 East, Okmulgee County, Oklahoma.

An undivided 31/64th interest in and to an oil and gas mining lease on and covering the North Half of the Northeast Quarter of Section 19, Township 14 North, Range 14 East, Okmulgee County, Oklahoma.

An undivided ⅛th interest in and to an oil and gas mining lease on and covering the Northwest Quarter of the Southeast Quarter and the Northeast Quarter of the Southwest Quarter; and the West Half of the Northeast Quarter of Section 32, Township 17 North, Range 14 East, Tulsa County, Oklahoma.

An undivided ⅛th interest in and to an oil and gas mining lease on and covering the East Half of the Southeast Quarter of Section 16, Township 19 North, Range 7 East, Creek County, Oklahoma;

Together with all the oil and gas wells, oil well casing, tubing, rods, pumps, jacks, engines, boilers, line pipe, derricks, machinery, houses and equipment of every kind and character thereon and thereunto belonging.

1—1926 Model One Ton Ford Truck.
1 Fordson Tractor equipped with Sampson Winch.
1 Ford Trailer.
1 National Pulling Machine.

Three rooms of office furniture and equipment, consisting of two rolltop desks, two flat top desks, 1 safe cabinet, one steel safe, office chairs, three typewriters, adding machine, rugs and other miscellaneous office equipment; the same to be sold in whole or in parcels.

Information regarding the above property may be secured from the undersigned, C. J. Hunt, Muskogee National Building, Muskogee, Oklahoma, Telephone No. 230, or from Nelson & Bland, Attorneys, 906 Exchange Bank Building, Tulsa, Oklahoma, Telephone No. 2-5762.

Dated at Muskogee, Oklahoma, this 13th day of May, 1929.

C. J. HUNT,
Receiver.

INCORPORATIONS

CHARTERS—Delaware best, quickest, cheapest, most liberal. Free forms. Colonial Charter Co., Wilmington, Del.

DELAWARE incorporator. Charters, fees small, forms. Charles G. Guyer, 901 Market St., Wilmington, Del.

HELP WANTED

WANTED — Engineer qualified by training and experience to handle design and engineering of complete petroleum refining plants. Position now open with old established equipment builders. Reply should give complete information of training and experience and salary. Write Box C-930, The Oil and Gas Journal, Tulsa, Okla.

WANTED—By manufacturer, one or two men with practical refinery operating experience to sell and service well-known special steel fittings used on tube stills and cracking coils. Engineering and selling experience desirable but not essential, as we want men who know tube still construction and operation and who have good personalities. Plant is in Ohio. Give age, family, record, experience and references. Address Box C-932, The Oil and Gas Journal, Tulsa, Okla.

WANTED—Superintendent for Oklahoma refinery. Must have experience in pipe still, Dubbs cracking, and continuous treating operation of west Texas crudes. State training, past and present connections and salary required. Box C-933, The Oil and Gas Journal, Tulsa, Okla.

ENGINEER experienced in the design of compression and absorption natural gasoline plants, for the position of assistant engineer. Must have thorough knowledge of modern equipment and practice and be capable of assuming responsibilities of chief draftsman. Interview by appointment only, or in correspondence. State in first letter, age, experience, education and salary expected. Location Tulsa, Okla. Forrest E. Gilmore Co., 408 Wright Building, Tulsa, Okla.

EXPERIENCED CHEMISTS, two to five years' refinery operating experience; also chemist one year analytical experience. State age, training, detailed experience, references, salary expected, also small photo. Shell Petroleum Corp., East Chicago, Ind.

EXECUTIVE-ENGINEER
A client of ours, a large Western company, has a splendid opening for a high-caliber man thoroughly experienced in construction of oil refineries. Successful applicant will probably not be under 35, will have charge of a large staff, and will be as versatile in field erection as in design. His headquarters may be Chicago. Compensation in keeping with the high requirements the position demands, with opportunity for a place in official family. Write, giving experience and qualifications in full. Client's organization knows of this advertisement.
ALBERT FRANK & COMPANY
Advertising
134 SO. LA SALLE STREET
CHICAGO.

POSITIONS WANTED

CIVIL ENGINEER
Twelve years' experience Mid-Continent fields. Thoroughly familiar with all phases of oil field engineering and construction. Pipe line and production. Desires connection Mid-Continent Field. Available at once; references furnished. Box C-924, The Oil and Gas Journal, Tulsa, Okla.

YOUNG married man now employed as refinery sales manager, experienced in refining, marketing and selling refining equipment. Will come to your office for interview. Can furnish references from past and present employers. Box C-943, The Oil and Gas Journal, Tulsa, Okla.

TRAFFIC MANAGER with long experience with leading Oil Well Supply Manufacturers, at liberty after March 1. Wants to locate in West or South. Willing to start at reasonable salary and let results care for future. Box C-752, The Oil and Gas Journal. Tulsa. Okla.

ASST. SUPT., or Stillman, by experienced man. 12 years with two of the largest refining companies. Light and heavy oils, and pressure stills. 3½ years foreign service. Now employed, but desire change, A No. 1 reference. Address Box C-952, The Oil and Gas Journal, Tulsa, Okla.

POSITIONS WANTED

GEOLOGIST AND GEOPHYSICIST
Thorough training in gravimetrical, magnetical, seismical work, quantitative interpretation. 4 years experience in geological and geophysical prospecting for oil; several languages, Ph. D. of European university, best references, goes abroad. Wants position, where good training appreciated. Box C-940, The Oil and Gas Journal, Tulsa, Okla.

VALUATION engineer and accountant. Graduate civil engineer. Six years experience in valuation and estimating reserves for oil and gas properties. Can do senior accounting. Desire position that will bring me in contact with the economies and production of oil properties. Services available about June 15. Age 39, married, and own my own home in Tulsa. Box C-953, The Oil and Gas Journal. Tulsa, Okla.

SUPPLY MAN with 10 years' experience desires position in sales or purchasing departments. Good references. Box C-951, The Oil and Gas Journal, Tulsa, Okla.

ADDRESSES WANTED

JOHN WILLIAMS
Anyone knowing the whereabouts of John Williams will confer a favor by notifying The Oil and Gas Journal at once. Mr. Williams lived near New Geneva, Pa. Later was employed as driller for Greensboro Natural Gas Co. Last heard of in Texas where he was employed in oil fields. Mr. Williams has a fully paid up policy. Eastern insurance company wishes to pay him its matured value. Write Box JPM, The Oil and Gas Journal, Tulsa, Okla.

FOR SALE—MAPS

OIL DEVELOPMENT MAPS — Any county in Oklahoma and West Texas, 50c each. Lindsay Map Company, Franklin Bldg., Oklahoma City, Okla.

LEASES—PRODUCTION

FOR ALL kinds of Texas leases and royalties, proven or wildcat, good title, write to 527 Hicks Bldg., San Antonio, Texas.

WILL BUY PRODUCTION
Will buy good production immediately if priced right. Give full information first letter, including amount of daily production, gravity, acreage, plat of property showing location of wells and surrounding wells, pipe line buying oil, price of oil, legal numbers of land, equipment, price wanted, etc. Box C-944, The Oil and Gas Journal, Tulsa, Okla.

WE WANT DRILLING BLOCKS
Send all details to
Box 152, Brownwood, Texas.

IF INTERESTED in the Michigan Oil Fields, write for free bulletin, or other information. Michigan Oil & Mining News, 115 Ionia St., Grand Rapids, Mich.

A GOING oil concern with production would like to get in touch with some operator having some acreage and production, with a view of a merger. We have a large selling organization and are in a position to raise capital. L. White, 514 Penobscot Bldg., Detroit, Michigan.

FOR SALE—To oil companies, complete maps of Presidio, Jeff Davis and Brewster Counties. L. E. Weeden, Fort Davis, Texas.

WINKLER COUNTY, TEXAS—Will sell interest in drilling well and 80-acre lease. Located NE cor. Sec. 2, Blk. B-5, southeast of the Bashara gas well. Contract for 3,500 feet or pay. Already financed. Cooper, 1,609 W. Page St., Dallas, Tex.

FINLAY DOME district, Hudspeth County, Texas, looks good. Map and lease prices $1.00 cash.
G. D. BATEN,
BOX 1591, EL PASO, TEXAS.

FOR SALE—Leases, Oil Production, Asphalt, Limestone and Other Mineral Lands. W. P. Harley, Bowling Green, Ky.

LEA COUNTY, New Mexico's biggest Oil Play. 40 acre lease $50.00. Chaves County, 40 acres $25.00. Monarch Inv. Co., Roswell, N. M.

35 CENTS a line first insertion; 25c a line each additional insertion. Cash in advance.

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LEASES—PRODUCTION

CRUDE WANTED

Parties in England owning and operating a Refinery wish to get in touch with parties owning crude, which could be shipped from Gulf Ports to England for refining. Great opportunity for co-operation, which will give owners of crude good prices and share of refining profits with products sold at English prices. Write fully giving specifications of crude available to CRUDOLEUM, 61, Belsize Avenue, London, N. W. 3, England.

30,000 ACRES

IN

MICHIGAN

Allegan and Van Buren Counties. Ten year leases. Written in last 60 days on most favorable terms. Twelve possible producing horizons. Highest geological authority states good structure present. Will sell all or part or will consider drilling proposition.

Write R. E. Lang, care Jackson Brothers, Boesel & Co., 332 South LaSalle Street, Chicago, Ill.

WANTED: Offset or close-in leases to production or to wells drilling on structure. Also interested acquiring fifty-fifty drilling deals on acreage offsetting production or close-in. Address Box C-901, The Oil and Gas Journal, Tulsa, Okla.

IF INTERESTED in Wildcat leases or royalties in Eastern New Mexico and Western South Plains of Texas, Address Box 968, Lubbock, Texas.

FOR SALE—New Mexico oil and gas leases, covering state lands. Good title. Lea County; 40 acres for $50. Chaves County, 40 acres $25. P. O. Box 194, Roswell, N. Mex.

M'PHERSON COUNTY, KANSAS
LEASES AND ROYALTIES
E. ENGSTROM,
M'PHERSON, KANSAS

HAVE 9,000-acre block, five-year leases, under drilling contract in northwest Stevens County on Cimarron River with best geology in southwest Kansas. Will sell or give good interest for well. Rotary or combination rig needed. For full information write Box 96, Rolla, Kans.

NEW MEXICO STATE LEASES
BOUGHT AND SOLD

List your leases with us. Quick action if priced right. Good demand. Box C-935, The Oil and Gas Journal, Tulsa, Okla.

OIL LEASES for sale for the rental. 4,000 acres 50c per acre. Box C-942, The Oil and Gas Journal, Tulsa, Okla.

FOR SALE one forty acre lease in section 24, township 17 south, range 34 east, Lea County. Near Vacuum well, state offer in first letter. M. J. McGurn, Jr., Ashford, N. Y.

NEW MEXICO

For land ownership of Lea County, write Mrs. Dock Townsend, Lovington, N. Mex.

3,500 acres for lease in Washington County. Lease located 3 miles south, 14 miles north between two big oil fields. This is almost proven territory. A wonderful opportunity for right man. M. E. Fisher, Brenham, Texas.

PECOS COUNTY OIL LEASE

Fourteen thousand acres blocked solid, bonus fifty cents per acre, twenty-five cent rental, ten year lease. No drilling requirements. No dry holes. Address Wilcox & Stone, Alpine, Texas.

SOUTHWEST Texas Oil—For information send $1 for year's subscription to Petroleum Reporter, Milam Building, San Antonio, Texas.

15,000 ACRES of best oil and gas lands in Kentucky and Tennessee selected by geologists on the best producing structure in those states and close to pipe line. Long term leases, very low rental. Will sell all or any part or will join others in developing same. Dr. W. D. Mixson, Waycross, Georgia.

LEASES—PRODUCTION

8 BBLS. production Section 31-17-12. Bargain if taken at once. For particulars write Box 116, Mounds, Okla., or phone Mr. Archer, 6920, Tulsa.

SHALLOW OIL

One hundred dollars will buy an assignment of a 128th interest, or $200 will buy an assignment of a 64th interest in drilling well on seventh-eighths lease covering 80 acres in shallow pool of Kiowa County, Oklahoma.

Discovery well brought in for 115 bbls. initial last October, still pumping 50 bbls. of 24 gravity oil from 440 feet. Gas sand since discovered estimated good for 1,000,000 to 5,000,000 cubic feet at 625 feet. Second oil sand recently uncovered at 920 feet variously estimated good for 25 to 100 bbls. of 36 gravity oil. Fourth sand predicted by geologists to be found at approximately 2,000 feet.

With lease drilled up you can visualize the enormous returns. Wire reservation or mail money order immediately as the sale of only a few interests are needed to complete well. We reserve the right to return all over-subscriptions. First come, first served.

Address W. C. Adams, Petroleum Exchange, Perrine Bldg., Oklahoma City, Okla.

FOR SALE—88 form producers oil and gas lease SE ¼ of Sec. 23-9-22 and south 160 acres of Sec. 7-9-21, Beckham County, Oklahoma, together or separate. No trades considered. Wire or write your best offer to Art Waymire, 4401 Hurlbut Ave., Detroit, Mich.

HAVE 126 leases, 10 oil wells on four leases, Wichita Falls district, splendid organization. Will sell all or one-half interest. Ideal nucleus for oil company. Box C-950, The Oil and Gas Journal, Tulsa, Okla.

DRILLING blocks, leases, royalties in Ellis, Trego, Rooks, Norton Counties. Write or wire W. J. Madden, Hays, Kansas.

BROKERS: Western Oklahoma leases, drilling blocks, royalties. Joe P. Crawford. Oklahoma City, Okla.

LEASES and royalties, Caddo, Blaine and adjoining counties. Write for complete list. A. E. Baldwin, Anadarko, Okla.

STRONG gas pressure water wells, my 819-acre farm, MONTGOMERY COUNTY, MISSISSIPPI, crossed by C.&G. R.R. Preston well, although west of fault line, had good showing high gravity, paraffin base oil (Pennsylvania grade). Geologists who "know their stuff" found closed structures, gas blowouts, petrified tree trunks and same fossils found in Smackover due west. Free lease, reliable operator only, for 3,500-foot well. R. N. Jacks, Kilmichael, Miss.

SHALLOW WELLS, high grade oil, acreage cheap, money refunded if not productive, dry hole money pays cost of drilling. A. W. Groseclose, Oklahoma City, Okla.

ROYALTIES AND LEASES,
BOUGHT AND SOLD.

25 years experience in the Mid-Continent oil fields. E. J. Davied, Fort Stockton, Texas.

LANDS, Leases, Royalties and drilling blocks in proven or unproven territories, Winkler, Pecos, Ward, Loving, Reeves, Culberson and adjoining Counties. Wire or Write.
H. F. Anthony, Anthony Bldg.,
Pecos, Texas.

WINKLER—PECOS COUNTIES
Leases and Royalties
W. S. PATTERSON
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(ADDITIONAL CLASSIFIED WANTS ON PAGE 168)

Chicago Market Much More Optimistic

Although Spot Demand Continued Light, Brighter Weather Is Expected Soon to Exhaust Stocks in Country Jobbers' Storage

By J. B. Waldo

CHICAGO, May 27.—The feeling in the market was much more optimistic than at the close of the week although the spot gasoline demand continued light. The weather over the week-end and today was bright and warm and it was felt that it would take only a little more of this weather to bring the country jobbers into the market for additional supplies. The refiners began the week with a general advance in gasoline of one-quarter of a cent, the price for U. S. Motor gasoline with the majority of the large refiners being increased to 9¼ cents. Some gasoline was available at less but few quotations were made below 9 cents for U. S. Motor. With a good movement and Memorial Day to help stocks outside of refiners' storage will be quickly reduced to normal as few jobbers have storage for more than a two weeks' supply with a good demand. The higher gravities were marked up with the U. S. Motor grade. There was considerable inquiry as to the prices over June. For the most part the only price quoted was for immediate shipment but some of the buyers were able to obtain quotations and some marketers stated they would be able to quote their trade a price of 9½ cents for June shipment. There has been little buying for June delivery in this market, even when prices were named that would seem low provided the gasoline market maintains its upward swing.

Kerosene Spotted

Kerosene was generally quoted by refiners at 6 cents but a few named a price of 5¾ cents. The market was spotted, some reporting considerable business, others stating that their sales were small. The spot business on gas and fuel oils was only fair although there are many inquiries in the market for June requirements. The tendency in both gas and fuel oils continues to be to try for advances in prices on the better grades while holding at the present market for the high sulphur and viscosity material. Some of the buyers for large industries are holding firmly to their specifications, while others are either modifying their specifications or are ordering oil which is not offered as meeting the complete specifications to secure a lower price. This accounts in a great measure for the wider range of prices named for the same gravity of material. This market was firm on all gas and fuel oils run from Oklahoma or equal grades of crude and having the full specifications, some of the refiners asking higher prices on Monday. Bright stocks and steam refined stocks were very strong.

Price Changes Unsettle Market

There were so many price changes in the last week that at the close the market was still unsettled. The changes as they were announced were explicit enough but the results of these changes as evidenced in this market were not so plain or easily anticipated. Beginning with the tank wagon advance which became effective over this territory on May 18, the jobbers have been light buyers in the spot market either because they felt that there was no further profit to be gained from carrying more stock than was necessary, or what is more likely because the weather over the week-end following that first tank wagon price change was unfavorable to large consumption and they did not need more supplies. On the other hand the marketers and some refiners began buying and when the increase in the price of Mid-Continent crude was announced there was more buying by these interests.

Announcement of the crude change was delayed here in some way. Usually new postings are received in this city before noon, quite frequently by 10 o'clock, but this time it was known to few before 4:30 o'clock in the afternoon. It does not seem likely that the refiners in the Group and North Texas were unaware of the change, but some of them sold freely at 8 to 8¼ cents over the remainder of May and a few buys were made for a limited number of cars of U. S. Motor gasoline at between 7¾ and 8 cents.

Sell At Old Price

Although announcement was made on Friday noon May 17 that the tank wagon scale would be increased by one cent over the territory, several, if not all, of the major refiners continued to sell some gasoline to their regular customers at 7¾ cents for prompt shipment and on Monday sold at 8 cents. During the last two days of that week ending May 18, the spot gasoline business was active and presumably a number of jobbers placed orders partly in anticipation of the Memorial Day demand which comes next Thursday. All in all there was an important amount of gasoline business placed between the news of the first tank wagon advance and the second increase in the price which was effective May 23.

Whatever gasoline was bought by jobbers for their storage or by refiners for their own distribution will only have this result so far as the present spot market is concerned to reduce their immediate needs for material. It may slow up the present demand a little but that will be forgotten if the weather improves sufficiently to permit the free use of cars. The gasoline bought by marketers for resale is another matter. Some of this material was purchased to cover previous sales—what might be termed short selling—although there has been little selling of gasoline that was not covered. Some of the gasoline bought was for future delivery and it is that gasoline today that is in part responsible for some quotations made in this market for U. S. Motor gasoline as low as 8½ cents, a quotation so general that even at the close of the week the market was not fully responsive to the refiner's quotation of 9 cents for U. S. Motor gasoline.

Holding U. S. Motor At 9 Cents

The major refiners at the close of the week were all holding U. S. Motor gasoline at 9 cents and some of the North Texas refiners who not infrequently are a little below the market have quoted their customers in this city a price of 9¼ cents which they assert is the true market. In fact some of them quoted that price as early as Monday of last week.

The tank wagon advance applied to all grades of gasoline but there is little or no tendency to increase the spread between the various gravities. The total range of quotations from the U. S. Motor up to the 64-66 375 was three-quarters of a cent and some of the 68-70 350 gravity could be bought at the same price as the 375 endpoint. The prices on these higher gravities were rather uncertain and some quotations were below those of the major refiners. Marketers in most cases were asking 9 cents for their U. S. Motor gasoline but were not quite as firm as the refiners as in many instances a lower price might be secured if there was genuine competition at a lesser price.

Memorial Day, coming on Thursday of this week, in a measure marks the beginning of the season of driving for pleasure if not of the touring season. It means the beginning of real gasoline consumption. All indications to date point to a big gasoline season and the supply of gasoline may prove to be as short as it was a year ago.

East Coast Orders Absent This Year

So far this season the market has lacked that support that came to it last year in the form of large orders for U. S. Motor gasoline for delivery to the East Coast companies. Some of these are understood to be drawing supplies from California and there is always that possibility to be considered of an invasion of the eastern territory by the California product through the Canal as the result of the many price changes in not only the Standard Oil Co. of Indiana territory, the industry is now on a new basis of prices which seems to be just as fair and reasonable as the former scale and which takes into consideration the increased demand due to the season.

The tank wagon advances in this territory have amounted to 2 cents a gallon. The refinery price advance to date amounts to 1 cent a gallon. Refiners have passed on a part of this increase.

The best posted men here say that the price structure has been set for the season and that while further increases in the spot gasoline market may result from a heavy consumption, only a really large consumption will be the cause for a further change and this consumption may be offset by the increase in the refining capacity. The tank wagon price of gasoline determines the price to the jobber under a refinery contract with protection.

Protection Afforded by Contracts

Some, if not all, the new contracts afford a 4 cent protection if the normal spread between the tank wagon and the station price is 1 cent, provide for a decrease to 3½ cents if the spread is increased to 2 cents and an increase in the amount of protection to 4½ cents if the general, statewide normal tank wagon price is made the same as the station price. This shows that such a change to no margin between the station and the tank wagon price has been considered within the range of possibilities.

The only other products receiving a tank wagon advance were the naphthas, which were increased 1 cent at the same time that gasoline received the second advance of 1 cent a gallon. There has been little change observable in the quotations of other products. Kerosene has been advanced by some of the refiners one-fourth cent but the market has only responded to this increase in part and is quiet, the demand being with most sellers for occasional cars. There was a better tone in the situation from the fact that the refiners had ceased to press the material for sale and that the supplies were limited and not increasing, although the consumption was light.

The present demand for furnace oils of all kinds was light, but that there was any demand was due to the cool weather and it should be warm enough from this time on for several months to remove the need of any heat in the homes. The refiners here who are also tank wagon distributors and the dealers in fuel oils are signing up their customers for next season.

Better Burners Available Now

The oil man often is blamed for the eccentricities or irregularities of the burner. But the manufacturers are producing a more reliable and serviceable burner and they have learned a lot about installing them. They have learned too when not to install an oil burner. The number of burners installed will be larger this season than it was last, the burner makers say, and this means a steady growth in the consumption of furnace oils. At this time the refiners and dealers are making offers of contracts to local distributors usually based on the market, but in some instances a flat price is made. These prices average about the cost of the same material to the jobber during the season but are higher than the same product could be bought for now when there is practically no demand.

The local representatives of the larger refining companies are bullish on gas oils, asserting that as the result of the advance in crude and the increased demand for gasoline their companies will crack all the available products from their crude stills and there will be little if any gas oil for sale as the straight-run gas oil will be held for cracking stock and the recycled oil held for next winter. This may be their situation but there are refineries which are running a lot of crude but which have no cracking units. These will have to dispose of their gas oil and dealers in this market state positively that never this season has gas oil been so pushed for sale as it has been for the last two or three weeks and since the crude advance there has been no let up.

Buying West Texas Oil

Some of the West Texas plants have gas oil to sell that is desirable for gas

Classified Wants

(Continued from Page 141)

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makers' use and it has been sold in quantities at pretty close to 2 cents Group 3 basis. At the same time the users of straightrun gas oil are not buying eagerly. They are buying when they can get their price but dealers say that the material is hard to move at any price. The demand is not there at present.

Excellent straightrun gas oil was purchased 2 cents Texas refinery in considerable quantities. This was 32-34 gravity, straw gas oil. A half-million gallons was bought by one gas company at 2¼ cents for delivery over three months. Shipment at any time during the period. This was an exceptional buy but not an exceptional sale so far as price is considered.

Other large sales have been made by refiners in the West Texas field. One factor with them is that they are having a good gasoline business and must run large quantities of gas and fuel oils for which they have no facilities for cracking as yet. The more active use of the cracking still may bring them buyers among the refiners but right now most of the refiners are beginning to operate their cracking plants freely and have their own cracking stock to use.

Zero gas oils are nominally priced a little higher than the straightrun oil, but as a fact they can be bought for resale at the same price from several refiners. The demand is small and the refiners who are running this oil may store it if they deem it best for the coming season of furnace oils.

Industrial Fuel Oil

The spot market for the industrial fuel oil is not active, many of the largest users being supplied on long contracts. The major industries are busy, although here and there a sign is shown that some of them are producing beyond the immediate demand.

The consumption of fuel oil bids fair to remain at a high point with the industries including those railroads that burn oil for some months at least. There will be little oil burned for heating until next October. Some of the refiners are asking advances of 2½ to 5 cents a barrel for their heavy fuel but the market here has not responded to these increases in price and most of the sales are being made at former prices largely because those buyers who are in the market will not pay any more until they are obliged to do so. They believe that they can tire the sellers out and pick up enough to supply their wants at the recent market. The demand for zoro oils is over until next winter and zero oils no longer command a premium. In the industrial oils a wide range of products is now offered and specifications consider the various factors that make an oil desirable for specific purposes.

The lubricating oil market is strong. Some refiners have advanced their price for bright stocks from the Mid-Continent field to 35 cents and the others expect to advance to this price. Many are sold up for some time ahead or at most can take on only a small amount of additional business. All refinery stocks are strong, even neutrals being held for full prices. There certainly is a tendency to increase the output of refinery stocks rather rapidly.

Refiners Adding Equipment

Most refiners are adding equipment if they can get good crude and some of the newer processes are said to be producing not only fine material but much larger percentages from the same grade of crude. One refiner with a comparatively new process, using the vacuum principle, stated that he could get 15 gallons out of the same quantity of crude that he had to run with his former process to get 3 gallons and that the lubricating oil from his new plant was a better lub. If this process is really accomplishing such results it must be getting a recovery almost equal to the gasoline output from crude. The demand for motor oils from the jobbers is not active, but the demand for industrial lubs is good.

The spread between the tank car refinery price and the service station price in this city is now 6 cents and between the tank wagon price and the refinery price 5 cents. These are the spot quotations, the contract price being close to 4 cents, according to the company's way of figuring the contract, for there are some differences that make a slight variation.

These price ranges are just about what many jobbers consider a fair margin. There is a liberal profit for the jobber as well as the refiner. It is believed that they will be generally held by jobbers and that during the height of the gasoline season the demand will be so good that any reasonably well located and managed station can get a good gallonage without cutting prices.

TANK CAR GASOLINE MOVES UP IN THE EAST

(Continued from Page 138)

except one quoting the inside figure. Volume of business is holding up well, with sales running considerably in excess of those for last year at this time. The outlook indicates further material gains in volume of trading over the balance of the year.

Interest in Diesel oil continues "in the air," with the further development of Diesel-powered motors for airplanes. Following successful trials of the new Packard Diesel motor for aircraft, it is now reported that General Motors is ready to place a Diesel-powered airplane motor on the market. The company's entrance into aviation through the purchase of a substantial interest in Fokker indicates that General Motors is about to carry its fight with Ford into the clouds, and that Diesel-powered motors will play an important part in its expansion program in this direction.

Paraffin

Wax trading has been confined to moderate quantities and the market shows little change from the previous week. Sellers are showing a tendency to stiffen up in their price views somewhat, but thus far demand has not improved to the point where it has been possible to make and maintain an advance in price on any of the grades. Crude scale is still rather soft in tone and trading is highly competitive on spot stuff.

Refiners are reported showing firmer views on the wax market, in line with higher crude costs, and some talk is heard of pending fractional price advances at principal producing points. This possibility, it is believed, has been responsible in some measure for the better buying noted on some grades. However, buyers in most instances are inclined to discount the possibility of any appreciable markup in prices within the near future and consequently are still operating hand-to-mouth.

Petrolatum

Pharmaceutical manufacturers have been in the market for the white grades in good volume this week and a steadier undertone has developed in some quarters. Snow white is strongly held at 8½ cents per pound, with lily held at 7½ cents and cream at 6½ cents per pound. Amber grades are also coming in for more demand at 3½ cents for amber and 3¾ cents per pound for the extra grade. Export buyers have been in the market for dark green in fairly substantial quantities, with a good volume reported booked at refineries at the equivalent of 2 cents per pound in barrels, f. o. b. Bayonne refinery terminals, in carlots. Domestic demand for the lower grade is also reported picking up.

Export Markets

The outstanding feature in the export market this week has been the action of the Petroleum Export Association in filing its papers with the Federal Trade Commission. This step marks further progress in the organization of the American petroleum industry for foreign marketing operations and the trade is watching with close interest for further developments along this line.

A moderately active inquiry for export gasoline has been witnessed this week. A cargo of 7,500 tons was sold for shipment out of Philadelphia at Gulf export prices with the usual differentials. The cargo comprised 4,500 tons of Navy, 2,000 tons of 64-66 and 1,000 tons of prime white kerosene. France was the buyer. An inquiry is now in the market for a 4,500 to 6,000 ton cargo for France, July shipment, consisting of 2,400 tons of kerosene, 1,000 tons of 64-66 and 1,000 tons of 390 endpoint. Refiners are figuring on this business, but is is understood that the buyer will not close until he has chartered a tanker for the movement. Numerous small inquiries are in the market and trading in small quantities for immediate and June shipment is reported to have shown considerable improvement.

Kerosene has moved into export channels in better volume during the week and a fairly steady undertone rules. Refiners are getting a good demand for cased stock, both prime and water white, with open market quotations on these products still withdrawn. South America has been a fair buyer of kerosene since the middle of the month and Europe has also been operating in a larger way. Russia, however, continues a strong competitor for business in Great Britain and on the continent.

Fuel oil for export has strengthened in sympathy with the higher market for crude with trading rather light.

Export business in lub oils has been of relatively light volume throughout the week so far as cylinder stocks are concerned, prices for these oils having reached levels where they are unattractive to the export trade.

Business in paraffin waxes and petrolatums for shipment abroad has shown improvement, although sellers declare that the market still leaves much to be desired from the standpoint of volume, and, so far as paraffin is concerned, from the price standpoint as well.

Petroleum Exports

The following table shows principal exports of petroleum and refined petroleum products from New York during the past three weeks (all figures in gallons unless otherwise noted):

	Week ended		
	May 18	May 11	May 4
Gasoline	150,000	55,000	1,537,200
Naphtha	525,000	3,100,000	1,041,900
Kerosene	12,000	640,000	675,100
Fuel oil	263,000	26,000	30,000
Lubricating oil	1,160,400	2,045,800	1,649,200
Pet., ref.	1,160,000	380,000	4,286,000
	Pounds		
Petrolatum	59,000	111,000	.....
Paraffin wax	1,615,000	1,342,000	873,700
Refined	.....	357,000	.....
Scale	360,000	222,000	277,000
Lub grease	890,000	1,030,000	1,150,400

Imports

Imports of crude and refined oils at the principal United States ports for the week ended May 18 totaled 1,950,000 barrels, a daily average of 278,571 barrels, compared with 1,802,000 barrels, a daily average of 257,428 barrels for the previous week and a daily average of 276,464 barrels for the four weeks ended May 18. Details follow:

(Barrels of 42 gallons)

	Bbls.
At Atlantic Coast ports—	
Baltimore	85,000
Boston	154,000
New York	947,000
Philadelphia	499,000
Total	1,665,000
Daily average	237,857
At Gulf Coast ports—	
Galveston district	69,000
New Orleans and Baton Rouge	175,000
Tampa	41,000
Total	285,000
Daily average	40,714
At all United States ports—	
Total	1,950,000
Daily average	278,571
Daily average 4 weeks	276,464

Included in the week's receipts at New York were the following shipments:

To Standard Oil Co. of New Jersey, 75,000 barrels on the Matinicock from Tampico; 83,000 barrels on the Niobe from Mamomal, and 75,700 barrels on the Leda from Las Piedras.

To Gulf Refining Co., 19,000 barrels on the Zapara from Las Piedras, 115,500 barrels on the Gulfbird from Las Piedras, and 115,000 barrels on the San Florentine from Las Piedras.

To Warner-Quinlan Co., 60,400 barrels on the Cities Service Fuel from Aruba, and 80,600 barrels on the Cecil County from Las Piedras.

To Mexican Petroleum Co., 62,200 barrels on the Edward L. Doheny from Aruba; 85,500 barrels on the Cerro Ebano from Aruba, and 74,700 barrels on the J. M. Danziger from Aruba.

To Shell Eastern Petroleum Products, Inc., 60,250 barrels on the Molestan from Curacao.

To Pan American Petroleum and Transport Co., 71,000 barrels on the Frederic Ewing from Aruba.

California Oil Receipts

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the week ended May 18 totaled 537,000 barrels, a daily average of 76,714 barrels, against 449,000 barrels, a daily average of 64,143 barrels for the previous week, and a daily average of 65,571 barrels for the four weeks ended May 18. Details follow:

(Barrels of 42 gallons)

At Atlantic Coast ports—	
Baltimore	157,000
New York	263,000
Philadelphia	117,000
Total	537,000
Daily average	76,714
Daily average 4 weeks	65,571

There were no receipts of California petroleum reported at Gulf ports for the week.

All of the week's receipts at Atlantic Coast ports were gasoline.

DRILLER'S VARIED TRIP TO PERSIAN FIELDS

CHATHAM, Ontario, May 25.—George McElphatric, after spending four and one-half months in Canada on furlough has left by way of New York and London, to resume work in the Persian fields for the Anglo-Persian Oil Co. Mrs. McElphatric is accompanying him. From Marseilles, France, they will cross the Mediterranean to Beirout, thence cross the Syrian desert to Bagdad, and from Bagdad will go to Basra, on the Persian Gulf, by airplane; making the final stages to Masjaida-I-Suleiman by steamer and auto. They expect to reach their destination about the end of June.

Mr. McElphatric has spent about six years in the Persian Field for the Anglo-Persian Oil Co. The company has a proven field about 10 miles long and 2 miles wide, which is being steadily extended; and a dry hole is an extreme rarity. The wells range from 2,000 to 5,000 feet deep, with initial production from 7,500 to 25,000 bbls. Most of the crude is taken by tankers to Swansea, South Wales, for refining, though there is a large refinery at Abadan, Persia, which supplies eastern markets. Until two years ago law in the oil fields was administered by the company itself, but since stable government was esthblished by Reza Shah, Persian law has prevailed.

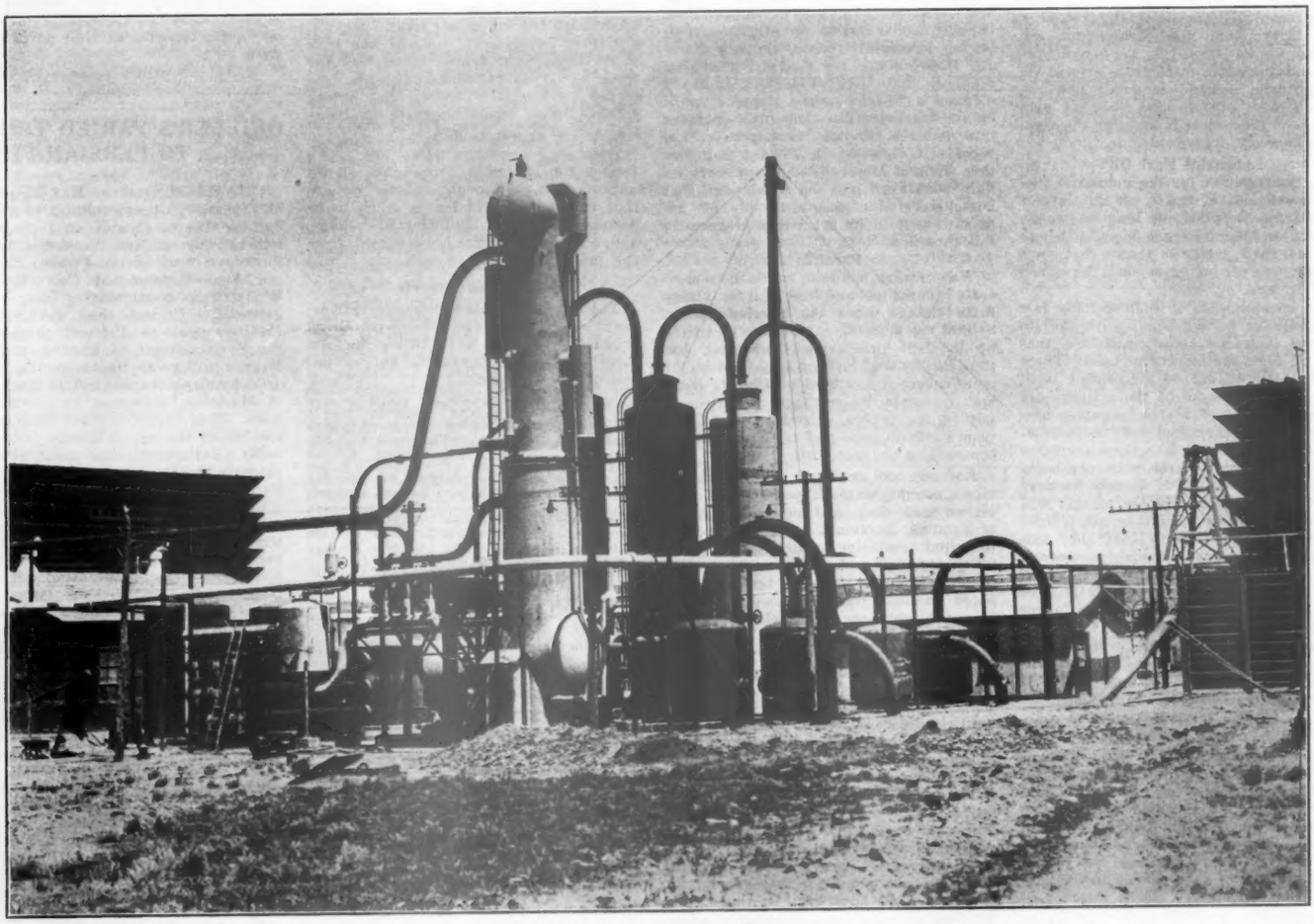
The temperature in June is about 120 in the shade, but all the rough, heavy work is done by natives, and excellent living conditions are provided for the white drillers. Commodious houses are provided, native servants, libraries, recreation halls and grounds for games of every description. Practically all the drillers are English speaking, the majority coming from the British Isles with a few from the United States and Canada. Mr. McElphatric expects to remain two and one-half years in Persia.

WEST TEXAS GEOLOGISTS

MIDLAND, Tex., May 27.—Guy E. Greene of the Vacuum Oil Co. offices at Midland, is the new secretary of the West Texas Geological Society. The society will substitute a field trip for the regular monthly meeting in June. The field trip of geologists will be conducted June 23 and 24 through the eastern New Mexico fields. The party will probably organize at Midland to start the trip.

E. Russell Lloyd, geologist with Fisher-Lowrie's Midland office, read a paper at the Midland meeting this month on "Depositional History of the Permian Basin, Origin of Red Beds and Saline Residues." The paper was written by Dr. Charles Lawrence Baker, chief geologist of the Rio Bravo Oil Co., Houston.

This ERECO Absorption Plant Is Good!



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Natural Gasoline Manufacture

Lessons Learned From Recent Fires At Gasoline Plants

By S. B. Crooks
Empire Oil & Refining Co.*

Referring to the first case, where the 10-unit plant in the Tonkawa Field exploded, causing the loss of three lives and severe burns to four others, as well as the destruction of the engine room—we will agree with the writer that scrubber tanks should be placed on the vapor line before entering compressor header for the accumulation and removal of any condensate that may be carried over in the compressors—and these tanks should also be equipped with a float to actuate a valve on the vapor line, closing the line off before the scrubber reaches the danger stage, thereby eliminating the chance of pulling over any fluid into the compressor cylinder. All tanks such as scrubber, accumulator, gasoline and air should be equipped with gauges, gauge glasses, and, I might add, relief valves. Ordinarily, 125-pound test valves and fittings are sufficient for stock tank manifolds as the majority of stock tanks are purchased for 50 to 60 pounds working pressure, but we will concede the rising stem valve should be universally adopted where the

(Continued on Page 155)

*Discussion of Emby Kaye paper, annual meeting, Natural Gasoline Association of America, Tulsa. Mr. Kaye's paper was published May 23 issue, page 98.

PHILLIPS CONSTRUCTING THREE GASOLINE PLANTS

Three new natural gasoline plants and additions to three existing plants, which are now under construction by the Phillips Petroleum Co., will add approximately 70,000 gallons of gasoline per day to that company's production, according to an announcement made by Phillips' officials.

The largest of the three plants now being built is known as Gray plant, located in Section 32, Block B-2, H.&G.N. Survey, Gray County, Texas. The plant will operate on well pressure, handle 50,000,000 cubic feet of gas per day and have a daily production of approximately 20,000 gallons. New drilling is supplying more gas than this plant will handle and an additional unit will probably be added in the near future to increase the gas volume handled to 75,000,000 cubic feet and production to 30,000 gallons per day.

Additional drilling about 2 miles northeast of Phillips' first Pampa plant in the Bowers Pool, Gray County, has produced so much gas that a new plant called Bowers is being constructed in Section 62, Block B-2, Gray County. This unit should be completed about June 15 and is expected to handle 10,000,000 cubic feet of gas through eight compressors and make 15,000 gallons of natural per day.

The third new plant is a 25,000,000-cubic-foot well pressure unit to be located in Section 56, Block 25, H.&G.N. Survey near Lefors. This plant is expected to make 15,000 gallons per day and will utilize gas now being wasted in this vicinity.

The gasoline production from all three of the above mentioned plants will be tied into the original plant in the Bowers Pool where the gasoline will be treated and pumped to loading racks at the town of Pampa. The authorized extensions to existing plants in Hutchinson County will account for about 20,000 gallons additional production. All of the extensions will operate on well pressure, which eliminates large expenditures for compressors and other machinery.

ADEQUATE STORAGE WILL AID IN PREVENTING PRICE FLUCTUATIONS

By H. C. Charles
Economist, Phillips Petroleum Co.*

As there are no figures available on total natural gasoline storage capacity, the following discussion is based on natural gasoline statistics as reported by the Bureau of Mines. Also, a few suggestions are offered relative to a storage program and the outlook for the natural gasoline industry.

In 1928, production of natural gasoline increased 9.1 per cent over 1927, while during the three previous years, production increased over 20 per cent above the preceding year. During the first three months of 1929, production increased 18 per cent over the same period of 1928. This large increase for the three months of this year is due to the fact that at the beginning of 1929, production was low and increased gradually during the entire year. If we compare the percentage increase in production for the first three months of this year over the last three months of last year, we find that the increase has amounted to only 5.3 per cent. This, however, is a large increase for this period of the year since demand was at its lowest point during this time. The average price for Grade "AA" natural gasoline, however, has held up remarkably well during this period, although there was a large decrease from September of last year to the end of January of this year.

Total consumption of all gasoline in the United States has increased 13.8 per cent for the three months period of this year over the same period of 1928. This is an abnormally large increase in consumption of gasoline and it is not expected that this rate will continue throughout the year, but it seems very probable that we shall have an increase of over 10 per cent in consumption of gasoline in 1929 over 1928. Natural gasoline used by refineries during the first three months of 1929 increased 19.4 per cent over the same period of last year. This may also be an abnormally large increase in the use of natural gasoline at refineries, but we may expect considerable improvement in demand for 1929 over 1928. The largest part of the increase so far this year has occurred on the East Coast and Texas

(Continued on Page 146)

*Annual convention, Natural Gasoline Association of America, Tulsa.

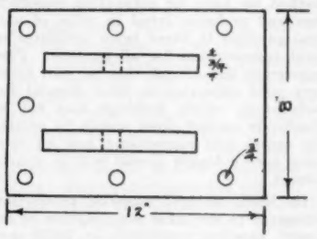
A PRACTICAL SUGGESTION

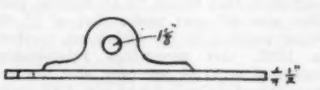
TRUCK HOIST

Handling heavy equipment and parts of machinery during a repair or construction job can be facilitated by the use of a readily made hoist and rigged up on a truck, which is equipped with a body winch. Installing manually heavy equipment such as flywheels or compression cylinders requires considerable time and even when exercising extreme precautions some hazards to the workmen still prevails.

The accompanying hoist is mounted on the rear of truck bed. The mast consists of two pieces of 3-inch seamless tubing flattened at each end. Each end is drilled for an inch bolt, the one for the bed plate and the other for the pulley. The mast is adjusted by two guy lines which are fastened to the sides of the truck.

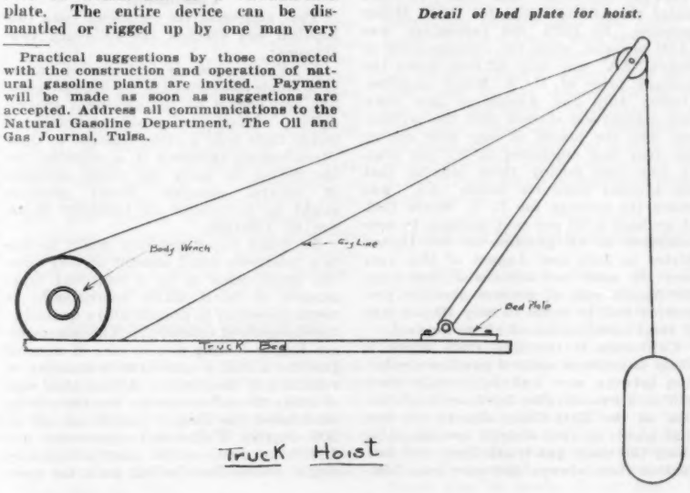
The bed plates are bolted to the truck and are made by welding a three-fourths-inch or 1-inch bar to a one-half-inch plate. The entire device can be dismantled or rigged up by one man very quickly. Such a hoist can lift a 4,000-pound flywheel and place it in any desired position or move it about the plant site.





Detail of bed plate for hoist.

Practical suggestions by those connected with the construction and operation of natural gasoline plants are invited. Payment will be made as soon as suggestions are accepted. Address all communications to the Natural Gasoline Department, The Oil and Gas Journal, Tulsa.



Truck Hoist

Present Grades of Natural Gasolines Require Revision

By G. G. Oberfell
Phillips Petroleum Co.*

One of the major problems presented to the technical committee of the Natural Gasoline Association of America was the revision of specifications for commercial grades of natural gasoline. A subcommittee has been working on this problem for three months. Although the work is not concluded it is believed some benefit may result from a report of progress to date.

The problem of segregating natural gasoline into five or less grades, each grade distinct from the others is indeed a complicated one. We are all aware that the present grades are totally inadequate to define the true value of natural gasoline. Only three of the present grades, AA, BB and C, are active and by far the greatest emphasis is placed on Grade AA. Natural gasolines marketed as Grade AA are quite diverse in properties ranging from 80 gravity, 98 per cent recovery to 88 gravity and 90 per cent recovery. The same range in properties is encountered in the other grades. At the same time the existing upper gravity limits exclude from the standard grades many valuable gasolines. As a comparison, why should a 94 gravity, 90 per cent recovery gasoline be an outlaw grade when a 92 gravity, 78 recovery gasoline is a standard product of the industry?

The purpose of any specifications is to adequately define the utility of the commodity to the greatest number of

(Continued on Page 146)

*Progress report of Technical Committee on proposed revision of specification for commercial grades of natural gasoline. Report presented at annual meeting, Natural Gasoline Association of America, Tulsa.

GILMORE PURCHASES FOUR CUSHING COMPANY PLANTS

The Forrest E. Gilmore Co. has purchased the gasoline properties of the Cushing Refining & Gasoline Co., including four gasoline plants with a daily production of 50,000 gallons of natural gasoline, together with additional acreage and gas reserves in the South Little River and Cushing territories in Oklahoma.

Included in this purchase are the plants at Blackwell and Ripley, Okla., as well as the plants in the St. Louis and South Little River Fields. Through the acquisition of these properties, the Gilmore company's daily production is brought up to 85,000 gallons and is another step in its initiated program of expansion which contemplates the production of 150,000 gallons daily by the end of this year.

In announcing the purchase of the Cushing Refining & Gasoline Co. properties, officials of the Gilmore company said that the production of the existing plants, as well as new plants purchased, will be increased by reason of additional gas reserves and added equipment, and that the total production is expected to reach 100,000 gallons daily by July 1.

In taking over the Cushing properties, the Gilmore company acquired 75 additional leased tank cars, making a total of 150 cars now in operation by the organization. Since the first of the year the Forrest E. Gilmore company has entered the Mid-Continent Field with a greatly expanded field organization and with a program of development which indicates a tremendous activity in this field. It has constructed and developed 12 casinghead gasoline plants in Oklahoma and Texas.

STORAGE WILL PREVENT PRICE FLUCTUATIONS

(Continued from Page 145)

and Louisiana Gulf Coasts, and also in California, while Mid-Continent and Indiana-Illinois refineries have used nearly 6 per cent less. Shipments of refinery gasoline in the Mid-Continent area have not increased at as fast a rate as shipments for the whole country, and it is probable that the reduction in the use of natural gasoline at refineries in this area will show considerable improvements in the next few months when weather conditions are better and demand for refinery gasoline picks up.

Dependent on Seasons

Natural gasoline demand is entirely dependent upon requirements of refineries and the seasonal consumption should vary as much or probably even more than consumption for motor fuel in the United States. This is because refineries build up large stocks of refinery gasoline in the winter and spring, which are later reduced when consumption is at its peak. Since stocks of refinery gasoline contain little if any natural gasoline, it appears that natural gasoline manufacturers should prepare for this period of largest consumption. At the end of March, refinery gasoline stocks were equivalent to 44 days' supply, while natural gasoline stocks at plants were equal to 7.5 days' supply. Of course, it would not be necessary for natural gasoline manufacturers to accumulate anything near the number of days' supply in storage that is carried by refineries, but if every plant in the country would double its storage facilities, there should be ample room to absorb the overproduction during the necessary periods. As stocks of natural gasoline at plants reached a new peak at the end of March this year, no doubt, it might appear that stocks are already burdensome, but when it is considered that only 7½ days' supply is on hand, it does not seem that they are excessive. An encouraging feature concerning stocks at the end of March, as reported by the Bureau of Mines, was the fact that one of the largest producing companies included its highly stabilized gasoline in its report. This represents approximately 50 per cent of all that company's storage of natural gasoline. This gasoline, then, will not necessarily come on the natural gasoline markets as the greater part of it will go directly to aviation and premium motor fuels.

Storage Relatively Small

At the end of March, 1929, natural gasoline stocks in the United States amounted to 41,800,000 gallons, of which approximately 25 per cent is stabilized gasoline that should not affect the natural gasoline market. This, then, leaves about five and one-half days' supply of natural gasoline in storage. On December 31, 1928, natural gasoline stocks amounted to 25,500,000 gallons which compared to 30,800,000 gallons on hand at the end of December, 1927. Although stocks were reduced 5,300,000 gallons in 1928, the average price for Grade "AA" natural gasoline in the Oklahoma market was .62 cent below the average price for U. S. Motor gasoline. It would appear, then, that natural gasoline production was not sufficient to meet the current demand during 1928, but still the average price for natural being under the average price for refinery gasoline, clearly shows that the natural gasoline industry should not expect to receive 1 to 2 cents per gallon more than the average selling price of U. S. Motor gasoline.

During 1928, in March, the price for Grade "AA" was 4.73 cents per gallon, while in July this price had advanced until 10.66 cents per gallon was being received.

This is a fluctuation of nearly 6 cents per gallon in a period of six months. During this same time, the average price for U. S. Motor gasoline was advancing from only 6.31 cents to 9.66 cents per gallon, or a variation of slightly over 3 cents per gallon. The runaway market in natural gasoline, no doubt, was caused by inability of natural gasoline manufacturers to supply refiners with the necessary amount of their product during the period of highest consumption. An aggressive storage program should have been carried out in the first part of the year when the average price for natural gasoline was hovering around 5 cents per gallon, and in this manner, a large quantity would have been taken off the market, at least temporarily. There would have been more available during the summer months, which could have been supplied to the consumer and a more stable price undoubtedly would have been prevalent during the year. This, however, should not be given the natural gasoline manufacturer a higher price over the year for his product but in stabilizing the price at around the average price of U. S. Motor fuel, refiners would undoubtedly have continued to use more natural gasoline during the winter months and our prices would not have shown such a sudden drop as they did after October of 1928.

It is estimated that from 80 to 90 per cent of all natural gasoline in the Mid-Continent area is sold on contract, and the other 10 to 20 per cent that is available naturally has a big effect on the spot market. The solution of the large fluctuation in natural gasoline market is for plant operators to provide ample storage to take care of the overproduction which only occurs during periods of lowest consumption. When the average price for natural gasoline is very much above the average price for U. S. Motor, refineries use only a minimum amount and in this manner the demand is automatically reduced. Also, when prices are too high, large numbers of small plants are built that increase the supply of natural gasoline. The only way that natural gasoline manufacturers have to stabilize prices is by controlling the outlet to market requirements. This cannot be successfully accomplished by only a few companies, but should be a co-operative movement by the entire natural gasoline industry.

Outlook for 1929

In trying to analyze the natural gasoline situation for the remainder of this year, relative to supply and demand, it is believed that by the time the period of highest consumption for motor fuel is here that demand for natural gasoline will be considerably improved. The best method we have for estimating consumption and probable trend in price of natural gasoline is based upon estimates of total consumption for all gasoline. Past experience has taught that we can make very good estimates on total demand for motor fuel, which, although may not be absolutely correct from month to month, the errors will compensate and an estimate over a longer period will be nearly correct.

In 1926, natural gasoline production compared to the total consumption of refinery gasoline amounted to 10.58 per cent, while average prices for the entire year show that Grade "AA" natural gasoline was .87 cent under that of U. S. Motor gasoline in the Oklahoma market. In 1927, this percentage relationship amounted to 11.31 per cent, and the average price for Grade "AA" was 1.14 cents under the average price for U. S. Motor gasoline. In 1928, the percentage was 11.09 per cent, while the average price of Grade "AA" was only .62 cent under the average price of U. S. Motor gasoline. During July and August of last year, this comparison showed that the percentage was the lowest of any time during the year and amounted to 9.1 per cent. It was also during these months that the average price for Grade "AA" was above the average for U. S. Motor fuel. If we have a 10 per cent increase in consumption of all gasoline in the United States in July and August of this year over the same two months of last year, the March rate of natural gasoline production will be equal to only 10 per cent of total consumption of all motor fuel.

California is the only state which is likely to increase natural gasoline production between now and July, while there will be a considerable decrease in production on the East Coast due to the fact that plants in that district are operating along the main gas trunk lines and production there always decreases from 150,000 to 200,000 gallons daily from the winter to summer months. Natural gasoline production in the Mid-Continent area is expected to hold about stationary. Although there will be some decline in present producing fields, new situations will be developed to take care of this decline. On the other hand, if California is successful in curtailing crude oil production to the contemplated figure of 650,000 bbls. daily, there will not be much increase in natural gasoline production in that State.

In assuming, then, that total demand for all gasoline will show at least a 10 per cent increase over last year, and allowing for a percentage relationship in natural gasoline production of 10.5 to 11 per cent, it will be necessary to produce over 6,000,000 gallons of natural gasoline daily during the summer months. This, of course, might be accomplished if there is no curtailment in California, but at the present time it appears that operators there are going to continue with the proration program as contemplated. This indicates that production of natural gasoline will not amount to 6,000,000 gallons daily and that there should be plenty of time to reduce storage at fair prices.

Bureau of Mines figures for March were not available until the first week in May. I would suggest that the Natural Gasoline Association endeavor to collect production, shipments and stocks by wire from the different companies at the end of every week and release these figures as quickly as possible after the first of the following week. If this were done, we would be able to analyze the natural gasoline situation with respect to supply and demand immediately. It is impossible to have any one company try to collect statistics as other companies are not willing to give out their information to competitors, but if the Natural Gasoline Association would provide forms to be filled out each week, I believe every company would co-operate and in this manner would be posted on up-to-date activities of natural gasoline industry at all times.

In conclusion, I do not believe that storage facilities are adequate. The natural gasoline manufacturer should increase his storage capacity so that average prices for natural gasoline would be stabilized and held to approximately the average price of U. S. Motor fuel. If this were done, refiners would then know what to expect, and a maximum amount of natural gasoline would be used at all times.

REVISE PRESENT GRADES OF NATURAL GASOLINE

(Continued from Page 145)

users. Consequently specifications should be drawn with the idea of providing the refiner with the best information regarding the use of natural gasoline for blending purposes. Gravity and distillation loss are only indirect measures of the values of natural gasoline. The committee has, therefore, been seeking more direct means of defining the useful volatility of our products.

Conclusions

The subcommittee working on this problem has reached the following conclusions:

1. Vapor pressure is the most important single characteristic of natural gasoline and should be the dominant specification. Since the vapor pressures of motor fuels bear a close relation to their vapor-locking tendency it is essential for the refiner to know the vapor pressure of natural gasoline. Vapor pressure might be considered an intensity measure of volatility.

2. Since vapor pressure might be due to a relatively small amount of very volatile constituents or by a relatively large amount of fairly stable constituents, it seems necessary to provide also a quantitative measure of volatility. The intermediate Engler boiling points, etc., of natural gasoline afford a quantitative measure of volatility of the product. After a great deal of study the subcommittee has tentatively established the Engler percentage off at 100 degrees Fahrenheit (corrected for distillation loss) as the most satisfactory single intermediate boiling point for specification purposes. The functions of this specification are:

(a) To move the product into a higher vapor pressure range when the quantitative volatility becomes so high as to cause the product to have high residual vapor pressure after ordinary handling losses either blended or unblended.

(b) To move the product into a lower vapor pressure range when the quantitative volatility becomes so low as to cause the product to have low residual vapor pressures after ordinary handling losses either blended or unblended.

3. The present specifications, namely gravity and distillation loss, bear only the most general relationship to the fundamental specifications now under consideration. Distillation loss has very little significance, while gravity bears a rough relationship to quantitative volatility.

4. The specifications to be proposed by the subcommittee will probably assume the following form:

Grade 3 Reid vapor pressure at 100 degrees Fahrenheit in pounds per square inch absolute, 22-26.

Engler per cent off at 100 degrees Fahrenheit corrected for distillation loss, 30-60.

If natural gasolines in this vapor pressure range have less than 30 per cent or more than 60 per cent off at 100 degrees Fahrenheit they shall be placed in Grades 2 and 4 respectively.

5. Although it will be impossible to establish grades on the basis of the proposed fundamental specifications which will exactly coincide with existing grades the subcommittee believes it will be possible to state which of the new grades most nearly correspond with each of the old grades.

6. Much thought has been given to the number of grades to be established. The subcommittee feels that five grades are necessary. During periods of overproduction of natural gasoline the less volatile grades will receive market emphasis, while in periods of underproduction the more volatile grades will be emphasized.

7. The general application of sound engineering principles in the natural gasoline industry has resulted in two factors which have contributed chiefly to the obsolescence of the present grades. These factors are:

(a) Improved extraction efficiency and the widespread adoption of the oil absorption process. These tendencies have increased the pentane content of the butane free base and at the same time have increased the quantities of butane available for inclusion in the finished natural gasoline.

(b) Improved fractionation of the raw condensate. This tendency has made it possible to exclude dissolved gases from the finished products. This has meant further additions to the butane content of natural gasoline.

The possibilities for further development of these two factors are by no means exhausted and this will be considered in the establishment of new grades.

Vital to Industry

This matter of revising specifications for natural gasoline is most vital to the industry. The economic phases are quite important. The present specifications place a barrier against unusually high volatility by means of the upper gravity limits. This upper gravity limit acts as a check on production although high gravity products are successful in finding markets. No revision of the present grades on the basis of fundamental specifications will be possible without a complete understanding of what natural gasoline is. It is the thought of your technical committee that if natural gasoline is graded according to specifications which directly denote its value to the refiner and which more or less reflect the cost of manufacture a desirable end will have been gained. Both the buyer and seller will know what the product is worth. Furthermore by knowing the fundamental physical characteristics of natural gasoline, the user will be able to more intelligently purchase the commodity. Thus, it is to be expected that markets for natural gasoline will be extended by rational specifications.

Brief Items for Petroleum Refiners

ANOTHER REFINERY IN PROSPECT AT MUSKEGON

MUSKEGON, Mich., May 25.—A fourth refinery for this city is now under consideration, according to plans which became known this week. E. C. Check of Duncan, Okla., was here looking for a refinery site. With associates he proposes to move a skimming plant located at Wichita Falls, Texas. The plant was formerly owned by the Western Oil Corp. of Wichita Falls.

There were several developments during the past week in refinery projects which have previously been announced. W. F. Simrall of Cincinnati, I. A. O'Shaughnessy, president of the Globe Oil and Refining Co., and G. G. Woodruff have purchased a 4-inch gathering which the Muskegon Oil Corp. is just completing connecting the Muskegon fields by rail and boat to loading facilities here.

The line will be owned and operated by the Simrall Pipe Line Co., a Delaware corporation. The new line is five miles long and will be used to transport crude oil for rail or boat movement to Lemont, Ill. The three owners early in May purchased the refinery at Lemont belonging to the Lemont Refining Co. The refinery is being enlarged and will be ready to operate within a month. Considerable storage is to be built in connection with the operation of the line.

Part of the equipment for the 500-bbl. skimming plant which the Muskegon Refineries, Inc., will build here has arrived. Contract for storage and other equipment for the plant which the Old Dutch Refining Co. will errect here will be let this week. This plant will have a capacity of 3,000 bbls. daily.

The new plant which owners of the Amarillo Producers and Refiners Corp. will erect here will be known as the Michigan Central Refining Co. According to officials, a railroad siding to the refinery site will be laid this week.

TO JOIN TRANSCONTINENTAL

E. G. Youngberg, in charge of the Tulsa office of the Wadhams Oil Co. of Milwaukee has resigned, effective June 1, to take charge of the Chicago office of the Transcontinental Oil Co. He will succeed L. E. Thorp, who recently resigned. Mr. Youngberg will spend two weeks at the Tulsa general offices of the Transcontinental and then take charge of the Chicago office.

Mr. Youngberg has been connected with the Wadhams Oil Co. for the past 10 years in various capacities. Before coming to Tulsa about a year ago he was connected with the Chicago sales offices of the company.

DIRECTORS TO MEET

The board of directors of the National Oil Show, Inc., will hold a meeting at the Palmer House, Chicago, June 3 for the purpose of deciding definitely when the first exhibit of the association will be held.

The association also has under consideration a proposal from the International Petroleum Exposition to hold its exhibit in connection with the annual exposition held in Tulsa in October. If this plan is approved it will mean that the exhibit which has been planned for Chicago will not be held.

STANDARD BUYS STATIONS

NEW YORK, May 25.—Standard Oil Co. of New York has purchased the Crown Oil Co., operating a chain of 20 filling stations located at Syracuse, N. Y., and surrounding territory.

77 PER CENT REFINING CAPACITY AGREE TO WEEKLY A.P.I. REPORT

NEW YORK, May 25.—Companies representing daily refinery capacity of 2,588,500 bbls. had up to noon today responded favorably to the request of W. R. Boyd, Jr., executive vice president of the American Petroleum Institute, for co-operation in the compilation of weekly data showing crude runs to stills, gasoline stocks, and gas and fuel oil stocks.

This figure represents approximately 98 per cent of the 2,649,000 bbl. total capacity of refiners who have answered Mr. Boyd's request. Refiners having total capacity of only 60,500 bbls. have said they would be unable to co-operate.

The latest replies place companies representing 76.96 per cent of the total refinery capacity of the United States on the list of those who have promised to supply the refinery figures for publication in consolidated form by the Institute. Publication will not begin, however, until returns are more complete.

Complete co-operation has been promised by refiners of the Louisiana Gulf Coast district, while favorable replies have been received from refiners representing more than 80 per cent of the total capacity of the East Coast, Appalachian and Louisiana-Arkansas districts and more than 95 per cent of the Indiana-Illinois-Kentucky district. The following table shows the latest returns by districts:

District—	Total Capacity	Capacity Answering Favorably	% of Dist.
East Coast	595,200	495,700	83.28
Appalachian	116,600	102,550	87.95
Indiana, Illinois, Kentucky, etc. .	324,000	310,800	95.93
Oklahoma, Kansas and Missouri...	421,200	251,600	59.73
Texas	680,600	472,200	69.38
Louisiana and Arkansas	253,830	205,000	80.76
Rocky Mountain .	130,400	87,950	67.45
California	841,460	663,700	78.76
Total	3,363,290	2,588,500	76.96
Texas (Gulf Coast)	449,000	316,000	70.40
Louisiana, (Gulf Coast) ..	159,000	159,000	100.00

A.O.M.A. PLANS TO HOLD EXHIBITION TO CHICAGO

CHICAGO, May 25.—The American Oil Men's Association announces that it will hold an exhibition of oil equipment in this city on the dates of the annual meeting of the American Petroleum Institute which are December 2, 3 and 4. The plan is to hold the display at the Congress Hotel. Announcements of the proposed plan which have been sent to manufacturers of all kinds of oil equipment, according to James A. Gilmore, secretary, brought more requests for space from the makers of oil well and refinery equipment than from the makers of equipment used by the oil jobbers.

The management of the association believes that many makers of oil well and refinery equipment will welcome an opportunity to have a display of their products at a location convenient for those who attend the annual gathering of oil men at the meeting of the American Petroleum Institute which will be at the Stevens Hotel. At the Congress Hotel exhibitors will be assured of congenial surroundings and every facility to make a display of their products.

NEW VAPOR PHASE PROCESS

The Richfield Oil Co. will start construction immediately of a vapor phase cracking process at its Hynes, Calif., refinery. The process is a new type which has been developed by the Richfield's engineers and Prof. Arthur Lachman of the University of California. According to C. M. Fuller, president of the company, three years of experimental work have been spent in the development of the process. Mr. Fuller states that when the new process is in operation five processes in handling cracked distillates will be eliminated and a saving of better than 30 cents a barrel in the manufacturing cost of gasoline will result.

GOLDEN WEST REFINERY

The Golden West Oil Co. is operating a 500-bbl. lubricating oil plant in the Ira oil field of Texas 10 miles south of Hondo, Tex. W. F. Detert is president of the company and W. E. Olmstead, general manager. The company has offices on the sixth floor, Real Estate Building, San Antonio, Tex.

EXPORT COMPANY FILES WITH TRADE COMMISSION

The Export Petroleum Association, Inc., which was recently organized by export companies to carry on export business in petroleum products, has filed papers under the Export Trade Act (Webb-Pomerene law) with the Federal Trade Commission for exporting petroleum and petroleum products. The company will maintain offices at 67 Wall Street, New York City.

Officers of the corporation are: Gilbert H. Montague, vice president, and John Knight Holbrook, Jr., secretary. Members are: Atlantic Refining Co., Philadelphia; Gulf Refining Co., Pittsburgh; Cities Service Co., New York City; Shell-Union Oil Co., New York City; Sinclair Consolidated Oil Co., New York City; Standard Oil Export Corp., New York City; Standard Oil Co. of New York, New York City; Tidewater-Associated Oil Co., New York City; The Texas Corp., New York City; Vacuum Oil Co., New York City; Richfield Oil Co. of California, Los Angeles; Union Oil Co. of California, Los Angeles; Standard Oil Co. of California, San Francisco; Marland Oil Co., Ponca City, Okla.; and Standard Oil Co. of Indiana, Chicago.

The Export Trade Act grants exemption from the antitrust laws to an association entered into and solely engaged in export trade, with the provision that there be no restraint of trade within the United States, or restraint of the export trade of any domestic competitor, and with the further prohibition of any agreement, understanding, conspiracy or act which shall enhance or depress prices or substantially lessen competition within the United States or otherwise restrain trade therein.

INSTALLING CRACKING UNIT

BARTLESVILLE, Okla., May 27.—Phillips Petroleum Co. officials announce that an additional crude still and a cracking unit being installed at the company's Borger, Tex., refinery, are nearing completion and should be in operation about June 1.

The cracking unit is expected to produce more than 50,000 gallons of cracked gasoline a day, according to John H. Kane, executive vice president, while the whole plant will have a total capacity of 10,000 bbls. of crude oil per day.

"FORT WORTH" USES T. & P. LUB OILS IN FLIGHT

The Texas Pacific Coal & Oil Co. of Fort Worth shared in the honors accorded the airplane "Fort Worth" and its pilots last week when they attracted worldwide attention by establishing a record for continuous flight of 172 hours, 32 minutes and 2 seconds. Texas Pacific products including aviation gasoline, aero motor oil and rocker arm grease were used exclusively in the flight.

The plane used was a Ryan brougham equipped with a Wright whirlwind motor. The engine had been run approximately 700 hours prior to the flight and when given a general inspection following the setting of the new record showed no defects.

Approximately 110 gallons of gasoline and 4½ gallons of motor oil were transferred from the refueling ship to the "Fort Worth" every 12 hours and 17 contacts were made in all. R. L. Robins, pilot, and Jim Kelly, co-pilot, brought the plane down following a split in one of the propeller blades which set up an excessive vibration in the motor.

HUMBLE BUILDING NEW BOGGY CREEK REFINERY

HOUSTON, Tex., May 25.—Humble Oil & Refining Co. has started construction of a 5,000-bbl. refinery unit in its Boggy Creek Field of Anderson County, eastern Texas. The refinery will consist of one pipe still, bubble tower and other auxiliary equipment.

Although the plant will have a capacity of 5,000 bbls. daily it is being built only to supply the local demand for gasoline in eastern and northern Texas and it is not anticipated the plant will be run steadily. Boggy Creek at present has a daily production of less than 2,500 bbls. daily. Most of this crude so far has been moved out by pipe line which was laid several months ago by the Humble Pipe Line Co.

In addition to its major refineries on the Gulf Coast and in West Texas the Humble company has been operating three smaller local or neighborhood refineries in Texas. One of these at San Antonio has a capacity of 5,000 bbls. daily and one each at Breckenridge and Chilton has a capacity of 1,500 bbls. daily.

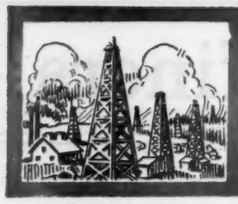
COL-TEX TO ENLARGE PLANT

The Col-Tex Refining Co. at Colorado, Tex., is building an addition to its refinery. This addition will be a topping and cracking plant combination with a daily capacity of 10,000 bbls., and processes for refining both sweet and sour crudes.

The enlarged refinery will have a daily capacity of approximately 20,000 bbls. The Col-Tex refinery was the first refinery built in West Texas, erected to handle crude from the Mitchell County Field.

WITH PAN AMERICAN

CHICAGO, May 24.—C. F. Hatmaker, long connected with the sales organization of the Standard Oil Co. of Indiana, and for several years assistant general manager in charge of the Western Division, has been elected to a vice presidency with the Pan American Petroleum Corp. and has left for the East to assume his new duties.



REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

GASOLINE AND NAPHTHA

	May 28		May 21		May 14	
OKLAHOMA (Group 3)—						
50-52 450 endpoint	.08⅜	.08⅝	.07⅝	.07¾	.07¼	.07⅜
56-58 450 endpoint	.08⅜	.08⅝	.07⅝	.07¾	.07¼	.07⅜
58-60 450 endpoint	.08½	.08¾	.07⅝	.07¾	.07¼	.07⅜
*58-60 437 endpoint (U. S. Motor)	.0911		.0788		.0776	
*60-62 437 endpoint	.0910		.0812		.07⅞	.08†
*60-62 400 endpoint	.0950		.0825		.0800	
*64-66 375 endpoint	.0975		.0855		.0865	
68-70 360 endpoint	.09½	.09¾	.08½	.08⅝	.08¼	.08⅜
64-66 437 endpoint (blend)	.08½	.08¾	.07¾	.08	.07½	.07⅝

*Weighted average prices May 27, 20 and 13 as reported by representative refiners. Sales to jobbers only. †No sales reported on May 13. Price given is general market.

NORTH TEXAS—						
56-58 450 endpoint	.08¼	.08½	.07½	.07⅝	.07⅛	.07¼
58-60 450 endpoint	.08¼	.08½	.07½	.07⅝	.07⅛	.07¼
58-60 437 endpoint (U. S. Motor)	.08½	.08¾	.07⅝	.07¾	.07¼	.07⅜
60-62 400 endpoint	.08¾	.09	.07¾	.07⅞	.07½	.07⅝
64-66 390 endpoint	.09	.09⅛	.07⅞	.07⅛	.07⅝	.07¾
64-66 375 endpoint	.09¼	.09⅜	.08⅛	.08¼	.08	.08⅛
68-70 360 endpoint	.09⅜	.09½	.08¼	.08½	.08⅛	.08¼
64-66 437 endpoint (blend)	.08¼	.08½	.07½	.07⅝	.07¼	
***NORTH LOUISIANA—**						
58-60 437 endpoint (U. S. Motor)	.09½	.09¾	.08¼		.08	
***ARKANSAS—**						
58-60 437 endpoint (U. S. Motor)	.09½	.09¾	.08¼		.08	
PENNSYLVANIA—						
52-54 Naphtha	.08½	.09	.08½	.09	.08¾	.09
54-56 Naphtha	.09¼	.09½	.08¾	.09	.08¾	.09
58-60 Gasoline	.10	.10½	.09½	.09¾	.09½	.09¾
60 Gasoline	.10¼	.10½	.09¼	.09¾	.09½	.09¾
62 Gasoline	.10½		.09¾	.10	.09¾	.10
64 Gasoline	.10½	.10¾	.10¼	.10½	.10½	.10¾
68-70 350 endpoint gasoline	.11¼	.11½	.11¼	.11½	.11¼	.11½
CALIFORNIA—						
58-60 437 endpoint (U. S. Motor) domestic	.09	.10	.09	.10	.09	.10
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.08½	.08¾	.07½		.07¼	.07⅜
56-58 450 endpoint	.08¾	.09	.07½	.07⅝	.07¼	.07⅜
58-60 437 endpoint (U. S. Motor)	.09	.09½	.08	.08¼	.07⅝	.07¾
60-62 400 endpoint	.09¼	.09½	.08¼	.08⅜	.07⅞	.08
64-66 375 endpoint	.09½	.09¾	.08¼	.08½	.08¼	.08½
68-70 360 endpoint	.09¾	.10	.08½	.08¾	.08½	
64-66 437 endpoint (blend)	.09	.09⅛	.07⅞	.08	.07⅝	.07¾
GULF COAST (Export)—						
58-60 (U. S. Motor)	.08½		.08½		.08½	
60-62 400 endpoint	.09½		.09½		.09½	
61-63 390 endpoint	.09¾		.09¾		.09¾	
64-66 375 endpoint	.10		.10		.10	

*Louisiana, Arkansas, Mississippi, East Texas delivery.

NATURAL GASOLINE

	May 28		May 21		May 14	
OKLAHOMA (Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.07¾		.06¾	.07	.07¼	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.07¾		.06¾	.07	.07¼	
Grade B, 76-83.9, 375 e.p., rec. 85%	.07½		.06¼	.06½	.06¾	
Grade BB, 84-92,375 e.p., rec. 85%	.07½		.06¼	.06½	.06¾	
Grade C, 80-90, 375 e.p., rec. 78%	.07¼		.06	.06¼	.06¾	
NORTH TEXAS—						
Grade A, 72-79.9 375 e p., rec. 90%	.07¾		.06¾	.07	.07¼	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.07¾		.06¾	.07	.07¼	
Grade B, 76-83.9, 375 e.p., rec. 85%	.07½		.06¼	.06½	.06¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.07½		.06¼	.06½	.06¾	
Grade C, 80-90, 375 e.p., rec. 78%	.07¼		.06	.06¼	.06¾	
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.08	.08¼	.07½	.07⅝	.08	
Grade BB, 84-92, 375 e.p., rec. 85%	.07⅝	.08	.07¼	.07½	.07⅝	
Grade C, 80-90, 375 e.p., rec. 78%	.07½		.07		.07½	
CALIFORNIA—						
75-78, 375-390 endpoint	.08	.08½	.08	.09	.08	.09
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.07¾	.08	.06¾	.07	.07¼	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.07¾	.08	.06¾	.07	.07¼	
Grade B, 76-83.9, 375 e.p., rec. 85%	.07½		.06¼	.06½	.06¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.07½		.06¼	.06½	.06¾	
Grade C, 80-90, 375 e.p., rec. 78%	.07¼		.06	.06¼	.06¾	

BURNING OIL

	May 28		May 21		May 14	
OKLAHOMA (Group 3)—						
41-43 water white kerosene	.05½	.05¾	.05½	.05⅝	.05⅝	.05⅝
42-44 water white kerosene	.06	.06¼	.06	.06⅛	.05⅞	.06⅛
***NORTH LOUISIANA—**						
41-43 water white kerosene	.06¾	.07	.06¾	.07	.06¾	.07
NORTH TEXAS—						
41-43 water white kerosene	.05½	.05⅝	.05¼	.05⅜	.05	.05⅛
40-42 water white kerosene	.05¼		.05⅛		.05	
***ARKANSAS—**						
41-43 water white kerosene	.06¾	.07	.06¾	.07	.06¾	.07
PENNSYLVANIA—						
43 Kerosene prime white	.06¾	.07	.06¾	.07	.07	.07¼
45 Kerosene water white	.06¾	.07	.07	.07¼	.07	.07¼
46 Kerosene water white	.07	.07¼	.07⅜	.07⅝	.07¾	.08
47 Kerosene water white	.07½	.07¾	.08	.08¼	.08	.08¼
300 Mineral Seal	.07¾	.08	.07¾	.08	.07¾	.08
CALIFORNIA—						
38-40 water white Kero. (high-burning test)	.05¾	.06½	.06	.06½	.06½	.07
Engine distillate, 43-44, 445 endpoint	.08	.08¾	.08	.08¾	.07½	.08½
Engine distillate, 42-44, 480 endpoint	.07½	.08¼	.07½	.08¼	.07	.08
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white kerosene	.05¾	.06	.05½	.05¾	.05¾	.06
42-44 water white kerosene	.06	.06¼	.06	.06¼	.06⅛	.06¼
GULF COAST (Export)—						
41-43 prime white	.07¾		.07¾		.07¾	
41-43 prime white	.08¾		.08¾		.08¾	

*Louisiana, Arkansas, Mississippi and East Texas delivery.

FUEL OIL

	May 28		May 21		May 14	
OKLAHOMA (Group 3)—						
Below 18 Fuel Oil, per bbl.	.50	.55	.47½	.55	.47½	.52½
20-22 Fuel Oil, per bbl.	.55	.60	.52½	.57½	.52½	.57½
22-26 Fuel Oil, per bbl.	.60	.65	.55	.60	.55	.60
24-26 Fuel Oil, per bbl.	.65	.70	.60	.65	.60	.65
26-30 Fuel Oil, per bbl.	.82½	.87½	.80	.85	.80	.85
28-30 Fuel Oil, per bbl. (industrial	.87½	.90	.82½	.85	.82½	.85
32-36 Gas Oil (industrial)	.02⅜	.02½	.02⅜	.02½	.02¼	.02⅜
32-36 Gas Oil (straw color)	.02⅝	.02¾	.02½	.02⅝	.02½	.02⅝
36-38 Distillate	.03	.03⅛	.03	.03⅛	.03	.03⅛
38-40 Straw Distillate	.03¼	.03½	.03¼	.03½	.03¼	.03½
NORTH TEXAS—						
Below 20 Fuel Oil	.60	.65	.60		.55	.60
24-26 Fuel Oil, per bbl.	.65	.70	.65		.60	.65
32-36 Gas Oil (straw)	.02⅜	.02½	.02⅜	.02½	.02¼	.02⅜
38-40 Straw Distillate	.03¼		.03¼		.03⅛	.03¼
***NORTH LOUISIANA—**						
18-20 Fuel Oil, per bbl.	.75		.75		.75	
30-32 Gas Oil	.02⅝	.02¾	.02⅝	.02¾	.02⅝	.02¾
***ARKANSAS—**						
33-36 Distillate	.03	.03¼	.03	.03¼	.03	.03¼
30-32 Gas Oil	.02½	.02⅝	.02½	.02⅝	.02½	.02⅝
16-22 Refiery Fuel Oil, per bbl.	.75		.75		.75	
GULF COAST (South Texas)—						
Gas Oil	.03½	.03¾	.03½	.03¾	.03½	.03¾
Bunker C Fuel (cargo lots), per bbl.	.80	.85	.75	.85	.75	.85
Bunker C Fuel (small lots)	.95	1.00	.95	1.00	.95	1.00
PENNSYLVANIA—						
30-34 Fuel Oil	.04¾	.04⅞	.04¾	.05	.04¾	.05
36-40 Fuel Oil	.05	.05¼	.05¼	.05½	.05¼	.05½
CALIFORNIA—						
33-36 Distillate	.04¼	.04¾	.04¼	.04¾	.04¼	.04¾
26-32 Distillate	.03½	.04	.03½	.04	.03½	.04
15-20 Fuel Oil, Bunker (at tide water)	.65	.85	.65	.85	.65	.85
15-20 Fuel Oil (cargo lots), per bbl.	.70	.85	.70	.85	.70	.85
27 plus Diesel, per bbl.	.90	1.05	.90	1.05	.90	1.05
CHICAGO DISTRICT (Based on Group 3)—						
22-26 Fuel Oil, per bbl.	.57½	.62½	.55	.60	.60	.65
18-22 Fuel Oil, per bbl.	.45	.50	.45	.50	.50	.55
28-30 Fuel Oil	.82½	.87½	.85	.90	.90	.95
32-36 Gas Oil (zero)	.02½	.02⅝	.02⅜	.02½	.02½	.02⅝
32-36 Gas Oil (industrial)	.02¼	.02½	.02¼	.02⅜	.02⅜	.02½
36-38 Distillate	.03		.03		.03	.03⅛
38-40 Straw Distillate	.03⅜	.03⅝	.03⅛	.03¼	.03¼	

*Louisiana, Arkansas, Mississippi, East Texas delivery.

LUBRICATING OIL AND WAX

	May 28		May 21		May 14	
OKLAHOMA (Group 3)—						
100 vis., 2 color, 20-25 cold test	.06¾	.07	.06¾	.07	.06¾	.07
100 vis., 3 color, 20-25 cold test	.05¾	.06	.05¾	.06	.05¾	.06
150 vis., 3 color, 20-25 cold test	.07¾	.08	.07¾	.08	.07¾	.08
150 vis., 4 color, 20-25 cold test	.07¼	.07½	.07¼	.07½	.07¼	.07½
180 vis., 3 color, 23-28 cold test	.09¼	.09½	.09¼	.09½	.09¼	.09½
180 vis., 4 color, 23-28 cold test	.08¾	.09	.08¾	.09	.08¾	.09
180 vis., 5 color, 23-28 cold test	.08½	.08¾	.08½	.08¾	.08½	.08¾
200 vis., 3 color, 23-28 cold test	.09¾	.10	.09¾	.10	.09¾	.10
200 vis., 4 color, 23-28 cold test	.09¼	.09½	.09¼	.09½	.09¼	.09½
200 vis., 5 color, 23-28 cold test	.08¾	.09	.08¾	.09	.08¾	.09
240 vis., 3 color, 25-30 cold test	.13¼	.13½	.13¼	.13½	.13¼	.13½
240 vis., 4 color, 25-30 cold test	.12¼	.12½	.12¼	.12½	.12¼	.12½
240 vis., 5 color, 25-30 cold test	.11¾	.12	.11¾	.12	.11¾	.12
280 vis., 3 color, 25-30 cold test	.15¾	.16	.15¾	.16	.15¾	.16
280 vis., 4 color, 25-30 cold test	.14¾	.15	.14¾	.15	.14¾	.15
280 vis., 5 color, 25-30 cold test	.13¾	.14	.13¾	.14	.13¾	.14
Cylider Stocks:						
600, steam refined, light green	.14½		.13	.15	.13	.15
600, steam refined, dark green	.13½		.12		.12	
190-200 vis., D color Bright Stock	.40	.41	.40		.39	
150-160 vis., D color Bright Stock	.35	.36	.35		.34	
150-160 vis., E color Bright Stock	.33	.34	.33		.32	
Waxes:						
124-126 White Crude Scale Wax	.03		.03		.03	.03¼
PENNSYLVANIA—						
34 Neutral	.07¾	.08	.07¾	.08	.07¾	.08
34 Sundebloom	.07¾	.08	.07¾	.08	.07¾	.08
36 Miners' Neutral	.07¾	.08	.07¾	.08	.07¾	.08
150, 3 color	.21½	.22	.21½	.22	.21½	.22
180, 3 color	.27	.27½	.27	.27½	.27	.27½
200, 3 color	.29	.30	.28	.29	.29½	.30
220, 3 color	.31	.31½	.31	.31½	.31	.31½
600, steam refined	.33½	.34	.33½	.34	.37	.38
635, steam refined	.36	.37	.37	.39	.39	.40
650, steam refined	.39	.39½	.39	.39½	.41	.42
600, Pennsylvania Flash	.41½	.42	.41½	.42	.41½	.42
630, Pennsylvania Flash	.44	.45	.44	.45	.44	
600, E filtered	.36½	.37	.36½	.37	.37½	.38
600, D filtered	.43½	.44	.43½	.44	.43½	.44
Pennsylvania Bright Stock	.52	.54	.52	.54	.57	
*122-124 White Crude Scale Wax	.03¾		.03¾		.03¾	
*124-126 White Crude Scale Wax	.04		.04		.04	

*At New York.

No. 2 color, 100 vis., pale oil	.06½	.07	.06½	.07	.06½	.07
No. 3 color, 200 vis., pale oil	.09	.10	.09	.10	.09	.10
No. 3 color, 300 vis., pale oil	.10	.10½	.10	.10½	.10	.10½
No. 3½ color, 500 vis., pale oil	.11	.11½	.11	.11½	.11	.11½
No. 4 color, 750 vis., pale oil	.14	.14½	.14	.14½	.14	.14½
No. 5 to 6 color, 200 vis., red oil	.07½	.08	.07½	.08	.07½	.08
No. 5 to 6 color, 300 vis., red oil	.08½	.09	.08½	.09	.08½	.09
No. 5 to 6 color, 500 vis., red oil	.09½	.10½	.09½	.10½	.09½	.10½
No. 5 to 6, color, 750 vis., red oil	.12½	.13	.12½	.13	.12½	.13
No. 2½ color, 200 vis., pale filtered	.11	.12	.11	.12	.11	.12

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

No. 2½ color, 300 vis., pale filtered	.12	.13	.12	.13	.12	.13
No. 2½ color, 500 vis., pale filtered	.14½	.15	.14½	.15	.14½	.15
No. 2½-3 color, 750 vis., pale filtered	.17	.19	.17	.19	.17	.19
CALIFORNIA—						
130 vis., 2½-3 color	.10¼	.10½	.10¼	.10½	.10¼	.10½
200 vis., 2½-3 color	.11½	.11¾	.11½	.11¾	.11½	.11¾
300 vis., 3-3½ color	.13	.13½	.13	.13½	.13	.13¼
350 vis., 3½-4 color	.13½	.13¾	.13½	.13¾	.13½	.13¾
400 vis., 3½-4 color	.15	.15½	.15	.15½	.15	.15½
Red Neutral:						
200 vis., 4½-5 color	.11	.11¼	.11	.11¼	.11	.11¼
300 vis., 5-6 color	.12	.12¼	.12	.12¼	.12	.12¼
400 vis., 5-6 color	.13¼	.14	.13¼	.14	.13¼	.14
500 vis., 4½-5 color	.15¼	.15½	.15¼	.15½	.15¼	.15½
500 vis., 5-6½ color	.15	.15¼	.15	.15¼	.15	.15¼
600 vis., 6½ plus color	.16	.16¼	.16	.16¼	.16	.16¼

Note: Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	May 28		May 21		May 14	
‡Gasoline, U. S. Motor, 58-60, 437	.10		.10		.09	.09¼
Kerosene, water white, 41-43	.08		.08		.08	
*Fuel Oil, Bunker "C," 14-16, per bbl.	1.05		1.05		1.05	
*Fuel Oil, Diesel, 28-30, per bbl.	2.00		2.00		2.00	
Gas Oil, 32-36 gravity	.05	.05½	.05	.05½	.05	.05½
25 pale Paraffin Oil	.10½		.10½		.10½	
28 pale Paraffin Oil	.07¼		.07¼		.07¼	
285 red Paraffin Oil	.11½		.11½		.11½	
250 red Paraffin Oil	.11		.11		.11	
225 red Paraffin Oil	.09½		.09½		.09½	
200 red Paraffin Oil	.09		.09		.09	
Refined Wax:						
120-122 a.m.p., per lb.	.03¾		.03¾		.04¼	
125-127 a.m.p., per lb.	.04¾		.04¾		.04¾	
130-132 a.m.p., per lb.	.04¾		.04¾		.06	
133-135 a.m.p., per lb.	.06¼		.06¼		.06¼	
135-137 a.m.p., per lb.	.06½		.06½		.06¾	
Petrolatum in barrels, carload lots, per pound:						
Dark green	.02		.02		.02	
Amber	.03½		.03½		.03½	
Extra amber	.03¾		.03¾		.03¾	
Cream	.06½		.06½		.06½	
Lily white	.07½		.07½		.07½	
Snow white	.08½		.08½		.08½	

‡Price of 10 cents became effective May 21. *Lighterage 5.0 cents a barrel extra. †Lighterage 6.5 cents a barrel extra

NEW YORK (BAYONNE) EXPORT PRICES

	May 28		May 21		May 14	
Kerosene, prime white	.08		.08		.08	
Kerosene, water white	.09		.09		.09	
600, steam refined cylinder stocks, in bbls.	.43	.44	.43	.44	.40	.41
635, steam refined	.45	.46	.45	.46	.42	.44
650, steam refined	.50	.51	.50	.51	.47	.48
600, Pennsylvania Flash	.53	.54	.53	.54	.50	.51
630, Pennsylvania Flash	.58	.59	.58	.59	.55	.56
600, Warren E	.45	.46	.45	.46	.43	.45
600, Oil City E	.44	.45	.44	.45	.42	.44
Light 140-150 Bright Stocks	.63	.68	.63	.68	.63	.65
Dark 140-150 Bright Stocks	.61	.66	.61	.66	.61	.65

LOS ANGELES EXPORT PRICES

	May 28		May 21		May 14	
Kerosene, water white	.05½	.06	.05½	.06	.05½	.06
U. S. Motor Gasoline, 53-55, 437 e.p.	.07	.07½	.07	.07½	.07	.08

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

Corsicana heavy (January 11)* ..... .80
Other fields ..... See gravity table

*Posted by Magnolia Petroleum Co.

TEXAS PANHANDLE

Gray County, Wheeler County and Carson-Hutchinson Counties—See gravity table.

WEST TEXAS

Iatan* ..... Same as North Texas
Crane-Upton-Crockett, Pecos, Winkler, Mitchell, and Glasscock (See gravity table).
Chalk† ..... .65

*Includes Howard County and Westbrook Fields.
‡Posted by Humble Oil & Refining Co.

ARKANSAS-NORTH LOUISIANA

Smackover, below 24 gravity (May 20, 1929) ..... $ .85
Smackover, 24 gravity and above (May 20, 1929) 1.00
Cotton Valley (Below 36 gravity May 22) ..... .85
Bellevue 1.20
Urania (May 21, 1929) 1.10
East El Dorado (May 22, 1929) ..... .85
Other fields ..... See gravity table

Cotton Valley crude above 36 gravity takes same gravity price schedule as shown for North Louisiana and Arkansas crude in Mid-Continent gravity price table.

Note—Smackover, Cotton Valley and Bellevue posted by Standard Oil Co. of Louisiana, and Magnolia Petroleum Co.; Urania posted by Louisiana Oil Refining Corp.; East El Dorado, Magnolia Petroleum Co.

GULF COAST

Grade A (May 20)* $1.30
Grade B ..... See gravity table
Jennings, La. (March 14)† $1.08
Saratoga, Batson, Dayton (March 14, 1927)‡ 1.20
Markham (March 14)§ 1.05
High Island (December 14)¶ 1.00

*Humble Oil & Refining Co., The Texas Company, Gulf Pipe Line Co., and Sun Pipe Line Co. †Gulf Pipe Line Co. ‡Sun Pipe Line Co. §The Texas Company.
¶Posted by Gulf Pipe Line Co.

ROCKY MOUNTAIN STATES

Ohio Oil Co.-Midwest Refining Co.
(Effective May 21, 1929)

Rock Creek, Wyo. $1.40
Salt Creek ..... See gravity table
Big Muddy 1.43
Grass Creek, heavy (July 27, 1928) ..... .90
Grass Creek, light 1.65
Mule Creek 1.20
Elk Basin 1.65
Lance Creek 1.65
Poison Spider (March 14, 1927) 1.00
Notches (March 14, 1927) ..... .67
Rex Lake (February 22) 1.10
Osage 1.65
Lost Soldier (contract, May 22) 1.05
Hamilton Dome (March 14, 1927) ..... .85
Greybull 1.65
Cat Creek (Montana) (July 27, 1928) .. 1.48
Sunburst (Montana) (May 23, 1929) ... 1.75
Torchlight 1.65
Hogback (New Mexico) (July 27, 1928) 1.70

Note—Salt Creek, Osage, Cat Creek, Greybull and Hogback posted by Midwest Refining Co., and the remainder by the Ohio Oil Co. Both companies post Grass Creek light and Elk Basin.

(Continued on Page 150)

CRUDE OIL GRAVITY TABLE

Gravity—	1 Okla., Kans. N. C. Tex.	2 No. La. and Arkansas	3 Crane, Upton, Crockett, Winkler, Howard, Pecos, Texas crudes, and Lea, N. Mex.	4 Stephens, Ark.	5 Wheeler (Texas Panhandle)	6 Gray County (Texas Panhandle)	7 Carson and Hutchinson (Texas Panhandle)	8 Salt Creek, Wyo.	9 Grade B & Light Crude (G. Coast)	10 Somerset (South Central Texas)
24 and above	....	....	....	....	....	....	....	....	....	....
Below 24	....	....	....	....	....	....	....	....	....	....
Below 25	.85	....	.70	....	....	....	....	....	1.15	....
25 to 25.9	.90	....	.74	....	....	....	....	....	1.18	....
26 to 26.9	.95	....	.78	....	....	....	....	....	1.21	....
27 to 27.9	1.00	....	.82	....	....	....	....	....	1.24	....
Below 28	....	1.00	....	.90	.90	.90	.90	....	....	....
28 to 28.9	1.05	1.05	.86	.94	.90	.90	.90	....	1.27	....
29 to 29.9	1.10	1.10	.90	.98	.90	.95	.90	1.10	1.30	....
30 to 30.9	1.15	1.15	.94	1.02	.95	1.00	.90	1.15	1.33	....
31 to 31.9	1.20	1.20	.98	1.06	1.00	1.05	.90	1.20	1.36	....
32 to 32.9	1 25	1.25	1 02	1 10	1.05	1 10	.95	1.25	1 39	1.05
33 to 33.9	1.30	1.30	1.06	....	1.10	1.15	1.00	1.30	1.42	1.07
34 to 34.9	1.35	1.35	1.10	....	1.15	1.20	1.05	1.35	1.45	1.09
35 to 35.9	1.40	1.40	1.14	....	1.20	1.25	1.10	1.40	1.48	1.11
36 to 36.9	1.45	1.45	1.18	....	1.25	1.30	1.15	1.45	....	1.13
37 to 37.9	1.50	1.50	....	....	1.30	1.35	1.20	1.50	....	1.15
38 to 38.9	1.55	1.55	....	....	1.35	1.40	1.25	....	....	1.17
39 to 39.9	1.60	1.60	....	....	1.40	1.45	1.30	....	....	....
40 to 40.9	1.65	1.65	....	....	1.45	1.50	1.35	....	....	....
41 to 41.9	1.70	1.70	....	....	1.50	1.55	1.40	....	....	....
42 to 42.9	1.75	1.75	....	....	1.55	1.60	1.45	....	....	....
43 to 43.9	1.80	1.80	....	....	1.60	1.65	1.50	....	....	....
44 and above	1.85	1.85	....	....	1.65	1.70	1.55	....	....	....

Column 1, Note—Magnolia Petroleum Co. posted schedule May 20, 1929, making price below 26 gravity 70 cents per barrel, 26-26.9 gravity 75 cents, 27-27.9 gravity 85 cents, 28-28.9 gravity 90 cents, 29-29.9 gravity 95 cents, 30-30.9 gravity $1.05, and 31-31.9 gravity $1.15, with balance of the price schedule as shown above.

Oklahoma—Carter Oil Co., Prairie Oil & Gas Co., Sinclair Oil & Gas Co., Gypsy Oil Co., The Texas Company, May 20.

North Central Texas—Including Ranger, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie, Nocona and Moran, Prairie Oil & Gas Co., Sinclair Oil Refining Co., Humble Oil & Refining Co., The Texas Company and Gulf Refining Co., May 20.

Kansas—Prairie, Sinclair, The Texas Company and Carter, May 20.

Column 2—Arkansas and North Louisiana—[Caddo, Bull Bayou, Crichton, Cotton Valley, above 36 gravity, DeSoto, Haynesville, Homer and El Dorado only], May 20, Standard Oil Co. of Louisiana, Louisiana Oil Refining Corp., Gulf Refining Co., Magnolia Petroleum Co., schedule applies to Pine Island, Haynesville, Bull Bayou, Louisiana and El Dorado, Ark., light crude.

Column 3—Humble Oil & Refining Co. and Magnolia Petroleum Co., May 20.

Column 4—Atlantic Oil Producing Co., Louisiana Oil & Refining Corp., May 21, 1929.

Columns 5, 6 and 7—Humble Oil & Refining Co., Magnolia Petroleum Co., May 20, 1929.

Column 8—Midwest Refining Co., May 20, 1929. All crude over 37 gravity $1.50 per barrel.

Column 9—Humble Oil & Refining Co., May 20, 1929 (schedule ends 35 and above).

Column 10—Grayburg Pipe Line Co. and Pioneer Oil & Refining Co., April 7.

CALIFORNIA CRUDE OIL PRICES

Standard Oil Co.-Union Oil Co. (Effective January 18, 1929)

Gravity—	1 Salt Lake, Potrero, Newport, Long Beach, Summerland, Lawndale Los Angeles, Fullerton, Richfield, Torrance, Olinda-Brea, Alamitos Heights, Signal Hill, Seal Beach, Huntington Beach, Inglewood, Rosecrans-Dominguez, Watsonville	2 Whittier, La Habra, Coyote Hills	3 Midway-Sunset, Elk Hills, Lost Hills, Belridge, Buena Vista Hills	4 Montebello	5 Santa Fe Springs	6 Santa Maria, Coalinga	7 Wheeler Ridge, Fruitvale	8 Orcutt Ventura, Rincon,	9 Ventura Ave.	10 Elwood Terrace
14 to 14.9	.70	.70	.50	.70	....	.50	.50	.65	.70	....
15 to 15.9	.70	.70	.50	.70	....	.50	.50	.65	.70	....
16 to 16.9	.70	.70	.50	.70	....	.50	.50	.65	.70	....
17 to 17.9	.70	.70	.50	.70	....	.50	.50	.65	.70	....
18 to 18.9	.75	.75	.56	.70	....	.56	.56	.70	.75	....
19 to 19.9	.80	.80	.62	.75	....	.62	.62	.70	.80	....
20 to 20.9	.85	.84	.68	.80	....	.68	.68	.70	.85	....
21 to 21.9	.89	.88	.74	.85	.89	.74	.74	.86	.86	....
22 to 22.9	.93	.91	.80	.90	.92	.80	.80	.87	.87	....
23 to 23.9	.97	.94	.85	.95	.95	.85	.85	.90	.90	....
24 to 24.9	1.01	.97	.90	.98	.98	.88	.88	.94	.94	....
25 to 25.9	1.05	1.00	.95	1.01	1.01	.91	.91	.98	.98	....
26 to 26.9	1.09	1.04	1.00	1.04	1.04	.94	.94	1.02	1.02	....
27 to 27.9	1.13	1.08	1.05	1.07	1.07	.98	.97	....	1.06	....
28 to 28.9	1.17	1.12	1.10	1.10	1.10	1.02	....	....	1.10	....
29 to 29.9	1.21	1.16	1.16	1.13	1.15	1.06	....	....	1.14	....
30 to 30.9	1.25	1.20	1.22	1.16	1.20	1.10	....	....	1.18	....
31 to 31.9	1.30	....	1.28	....	1.25	1.14	....	....	1.22	....
32 to 32.9	1.35	....	1.34	....	1.30	1.18	....	....	1.28	....
33 to 33.9	1.41	....	1.40	....	1.35	1.22	....	....	1.34	....
34 to 34.9	1.47	....	1.46	....	1.40	1.26	....	....	1.40	1.16
35 to 35.9	1.53	....	....	....	1.45	1.30	....	....	1.46	1.22
36 to 36.9	1.59	....	....	....	1.50	....	....	....	1.52	1.28
37 to 37.9	1.65	....	....	....	1.55	....	....	....	1.58	1.34
38 to 38.9	1.71	....	....	....	1.60	....	....	....	1.64	1.40
39 to 39.9	1.77	....	....	....	1.65	....	....	....	1.70	1.46
40 to 40.9	1.83	....	....	....	....	....	....	....	1.76	1.52
41 to 41.9	1.89	....	....	....	....	....	....	....	1.82	1.58
42 to 42.9	1.95	....	....	....	....	....	....	....	1.88	1.64

Kern River, Newhall-McKittrick, Mount Poso and Round Mountain 11 to 13.9 gravity 45 cents, 14 gravity and above 50 cents, effective October 2, 1929. On December 1, 1928, the Union Oil Co. posted Midway-Sunset, Elk Hills, Buena Vista, Lost Hills and Coalinga crude as follows: 11 to 13.9 gravity at 45 cents, 14 gravity and above 50 cents.

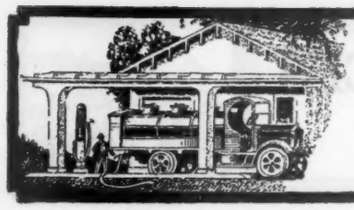
Column 1—Signal Hill, Seal Beach, Huntington Beach and Alamitos Heights crude, 14 to 32.9 gravity, inclusive; Richfield, Olinda-Brea and Fullerton, 14 to 30.9 gravity; Torrance and Inglewood, 14 to 28.9 gravity, Dominguez and Athens-Rosecrans, 24 to 42.9 gravity.

Column 2—Whittier crude, 14 to 22.9 gravity; Coyote Hills, 14 to 30.9 gravity.

Column 3—Kern River, Newhall and McKittrick, 11 to 19.9 gravity; Midway-Sunset, Buena Vista and Elk Hills, 11 to 33.9 gravity; Lost Hills, 11 to 34.9 gravity; oil below 14 gravity posted at 45 cents.

Column 6—Oil below 14 gravity posted at 45 cents.

Columns 8 and 9 posted by Union Oil Co. only.



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns May 28.

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Chicago dist.†	16.0	17.0	...	13.0
Decatur, Ill.	16.2	17.2	...	13.1
E. St. Louis	15.4	16.4	...	12.2
Joliet	16.4	17.4	...	13.2
Peoria	16.2	16.0	...	13.1
Quincy	16.2	17.2	...	12.9
Davenport, Ia.	19.5	20.5	3.0	13.3
Des Moines	19.5	20.5	3.0	13.3
Keokuk	19.5	20.5	3.0	13.3
Sioux City	19.1	20.1	3.0	12.9
Duluth, Minn.	20.5	21.5	3.0	13.9
Mankato	20.1	21.1	3.0	13.7
Minneapolis	20.2	21.2	3.0	13.9
LaCrosse, Wis.	19.2	20.2	3.0	14.0
Milwaukee	18.1	19.1	3.0	12.9
Madison	18.3	19.3	3.0	13.1
Detroit, Mich.	19.8	20.8	3.0	14.7
Grand Rapids	19.7	20.7	3.0	14.6
Saginaw	19.9	20.9	3.0	14.8
Evansville, Ind.	20.0	21.0	4.0	14.0
Fort Wayne	20.4	21.4	4.0	14.4
Indianapolis	20.2	21.2	4.0	14.2
South Bend	20.4	21.4	4.0	14.4
Fargo, N. D.	20.9	21.9	3.0	15.9
Huron, S. D.	21.3	22.3	4.0	14.7
Sioux Falls	20.1	21.1	4.0	14.4
K. C. Mo.*	18.9	19.9	3.0	11.6
Springfield*	18.8	19.8	3.0	12.5
St. Louis*	17.9	18.9	2.5	12.3
St. Joseph	18.5	19.5	3.0	12.2
Wichita, Kans.	17.5	18.5	3.0	11.8
Bartlesville, Ok.	16.5	18.5	3.0	11.5

*State tax 2 cents; remainder city tax.
†Effective February 20, discounts on Q.D.A. in Chicago district 3 cents off service station price on purchases of 500 gallons or more per month and 4 cents on purchases of 1,000 gallons or more per month.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	15.7	12.9
V. M. & P. Naphtha	17.2	13.9
Cleaner's naphtha	17.0	14.9
Stanisol	18.0	15.4

Tank wagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting.

STANOLIND FURNACE OIL IN CHICAGO

Less than 100 gallons	9.0
100 to 799 gallons	8.0
800 gallons or more	7.5

Note—Outside Chicago furnace oil discount of 1 cent per gallon is given on deliveries of 100 to 349 gallons and 1½ cents on deliveries of 350 gallons or more.

The following quantity discounts from the service station price are allowed on monthly sales of gasoline: 3,000 gallons or less, 2 cents; more than 2,000 and less than 6,000 gallons, 2½ cents; more than 6,000 gallons, 3 cents. Discounts are allowed each month, and they are not cumulative. Delivery tickets showing date and quantity delivered must be sent to the seller before the tenth of the month to secure the discount on the previous month's purchases.

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Dallas, Tex.	13.0	17.0	2.0	13.0
Fort Worth	13.0	16.0	2.0	13.0
Houston	14.0	18.0	2.0	13.0
San Antonio	13.0	17.0	2.0	11.0
El Paso	17.0	20.0	2.0	16.0
Texarkana	15.0	19.0	2.0	13.0
Muskogee, Ok.*	15.0	19.0	3.0	13.0
Okla. City*	15.0	19.0	3.0	12.0
Tulsa*	13.0	17.0	3.0	10.0
Ft. Smith, Ark.	15.0	19.0	5.0	13.0
Little Rock	20.0	24.0	5.0	13.0

*Gasoline tank wagon price to dealers 2 cents under posted tank wagon.

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Denver, Colo.	18.0	21.0	4.0	15.5
Pueblo	18.0	21.0	4.0	15.5
Grand Junction	22.5	25.5	4.0	19.0
Casper, Wyo.	21.0	24.0	4.0	14.0
Cheyenne	22.0	25.0	4.0	15.5
Butte, Mont.	25.5	28.5	5.0	20.0
Helena	25.5	28.5	5.0	20.0
Salt Lake, Utah	22.0	25.0	3.5	17.0
Albu'que, N. M.	20.0	23.0	5.0	17.0
Boise, Idaho	24.5	27.5	4.0	19.0
Twin Falls	24.5	27.5	4.0	19.0

PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND

The Atlantic Refining Co.

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Pittsburgh, Pa.	16.0	*21.0	...	14.0
Philadelphia	16.0	*21.0	...	14.0
Scranton	16.0	*21.0	...	14.0
Allentown	16.0	*21.0	...	14.0
Altoona	16.0	*21.0	...	14.0
Erie	13.0	*21.0	...	14.0
Dover, Del.	19.0	21.0	3.0	14.0
Wilmington	19.0	21.0	3.0	14.0
Springf'd, Mass.	18.0	20.0	2.0	15.0
Worcester	18.0	20.0	2.0	15.0
Boston	18.0	20.0	2.0	15.0
Providence, R.I.	16.0	16.0	2.0	15.0
Hartford, Conn.	18.0	20.0	2.0	14.0
New Haven	17.0	18.0	2.0	15.0

*Includes tax of 3.0 cents. Pennsylvania tax is collected by the dealer and paid by him direct to the state. The Atlantic Refining Co. recognizes a 2-cent per gallon discount on gasoline from its posted tank wagon markets on sales to dealers for purposes of resale. The Atlantic Refining Co. also recognizes a maximum discount of 3 cents per gallon on gasoline to commercial accounts under contract for one year.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Albany, N. Y.	15.0	16.0	3.0	15.0
New York*	19.0	21.0	3.0	15.0
Buffalo	16.0	17.0	3.0	14.0
Rochester	16.0	17.0	3.0	14.0
Syracuse	16.0	17.0	3.0	15.0
Boston, Mass.	18.0	20.0	3.0	15.0
Augusta, Me.	20.0	22.0	4.0	15.0
Manch't'r, N.H.	20.0	22.0	4.0	15.0
Burlington, Vt.	19.0	20.0	4.0	15.0

*Prices in steel barrels.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Atlanta, Ga.	21.0	23.0	4.0	16.5
Augusta	21.0	23.0	4.0	15.5
Macon	21.0	23.0	4.0	16.5
Savannah	20.0	22.0	4.0	15.5
Birm'ham, Ala.	21.0	23.0	4.0	16.0
Mobile	21.0	23.0	4.0	15.0
Montgomery	22.0	24.0	4.0	16.5
Clarks'le, Miss.	19.0	21.0	5.0	13.5
Jackson	17.0	19.0	5.0	13.0
Natchez	20.5	22.5	5.0	14.0
Gulfport	22.5	24.5	5.0	14.0
Vicksburg	20.5	22.5	5.0	14.0
Jack'ville, Fla.	22.0	24.0	5.0	14.5
Miami	23.0	25.0	5.0	15.5
Pensacola	23.0	25.0	5.0	14.5
Tampa	22.0	24.0	5.0	14.5
Lexington, Ky.	20.0	22.0	5.0	15.5
Covington	20.0	21.0	5.0	15.5
Louisville	20.0	22.0	5.0	15.0
Ashland	18.0	19.0	5.0	15.5
Catlettsburg	18.0	19.0	5.0	15.5

In addition to the state tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspectin fee of one-half cent on kerosene and one-fourth cent on gasoline. Pensacola and Mobile taxes include 1-cent city levy. Gulfport tax includes privilege tax of 2 cents in addition to state tax.

PACIFIC COAST TERRITORY

Standard Oil Co. (California)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
San Francisco	19.0	23.0	3.0	15.5
Los Angeles	18.5	22.5	3.0	15.5
Reno, Nev.	24.0	26.0	4.0	19.0
Portland, Ore.	19.5	23.5	3.0	16.5
Seattle, Wash.	18.5	22.5	3.0	16.5
Tacoma	18.5	22.5	3.0	16.5
Spokane	22.5	26.5	3.0	20.5
Phoenix, Ariz.	18.0	22.0	4.0	20.5

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Omaha	20.25	22.25	4.0	13.25
McCook	21.75	23.75	4.0	14.75
Norfolk	20.75	22.75	4.0	13.75
N. Platte	21.75	23.75	4.0	14.50
Scottsbluff	21.75	23.75	4.0	14.25

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Atlantic City	14.0	18.0	2.0	13.0
Newark, N. J.	16.0	20.0	2.0	13.0
Annapolis, Md.	18.0	22.0	4.0	13.0
Baltimore	18.0	22.0	4.0	12.0
Cumberland	18.0	22.0	4.0	12.0
Washington	16.0	20.0	2.0	12.0
Danville, Va.	19.0	23.0	5.0	12.0
Norfolk	19.0	23.0	5.0	13.0
Petersburg	19.0	23.0	5.0	13.0
Roanoke	19.0	23.0	5.0	13.0
Richmond	19.0	23.0	5.0	13.0
Charles'n, W.Va.	18.0	22.0	4.0	13.0
Keyser	18.0	22.0	4.0	13.0
Parkersburg	18.0	20.0	4.0	13.0
Wheeling	18.0	22.0	4.0	13.0
Charlotte, N. C.	19.0	23.0	5.0	13.0
Hickory	19.0	23.0	5.0	13.0
Mt. Airy	19.0	23.0	5.0	13.0
Salisbury	18.0	20.0	5.0	13.0
Charls'ton, S.C.	20.0	24.0	6.0	13.0
Columbia	20.0	24.0	6.0	13.0

OHIO

Standard Oil Co. (Ohio)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
Ohio points*‡	20.0	21.0	4.0	†14.0

*Dealers and commercial accounts 2 cents under tank wagon.
†Service station price 16 cents.
‡Effective May 29.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incl'ds tax of	Kero. tank wagon
N. Orleans, La.*	15.5	19.5	5.0	16.0
Baton Rouge	16.0	19.0	4.0	14.5
Alexandria	17.0	21.0	4.0	16.0
Lafayette†	18.0	22.0	5.0	14.0
Lake Charles†	18.5	22.5	5.0	16.0
Shreveport	19.5	22.5	4.0	15.0
Knoxv'le, Tenn.	21.0	25.0	5.0	16.0
Memphis	17.0	21.0	5.0	13.5
Chattanooga	20.5	24.5	5.0	16.0
Nashville	18.0	22.0	5.0	16.0
Bristol	21.0	24.0	5.0	14.0
Lit. Rock, Ark.	19.0	23.0	5.0	13.0

*Tax of 5 cents includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax and 1-cent parish tax.
†Includes 1-cent parish tax.

TANK WAGON CHANGES

May 18—Standard Oil Co. of Nebraska advanced gasoline tank wagon and station prices 1 cent in Nebraska.

May 19—Continental Oil Co. advanced gasoline tank wagon and station prices 1 cent in Casper, Wyo., to 20 and 23 cents, and reduced the gasoline tank wagon and station prices in Grand Junction 1 cent to 21.5 and 24.5 cents. The station price was advanced 1 cent in Cheyenne, Wyo., to 24 cents.

May 22—Standard Oil Co. of Louisiana advanced the gasoline tank wagon and station prices 1 cent throughout Louisiana, Tennessee and Arkansas except in Shreveport, La., where the advance was 1½ cents.

May 23—Standard Oil Co. of Indiana advanced the gasoline tank wagon and station prices 1 cent throughout their territory. Standard Oil Co. of Nebraska advanced the gasoline tank wagon and station prices 1 cent in Nebraska.

May 24—Continental Oil Co. advanced gasoline tank wagon and station prices 1 cent throughout their territory except in New Mexico.

May 14—Magnolia Petroleum Co. reduced kerosene 1 cent in San Antonio, Tex., to 11 cents.

May 27—Magnolia Petroleum Co. advanced gasoline tank wagon and station prices 1 cent throughout Oklahoma except Tulsa and advanced the gasoline tank wagon and station prices 3 cents in Little Rock, Ark. and 1 cent in Texarkana.

May 25—Standard Oil Co. of Louisiana advanced the gasoline tank wagon price 2 cents in Shreveport, La., to 19.5 cents.

May 29—Standard Oil Co. of Ohio will advance the gasoline tank wagon and station prices 1 cent.

CRUDE PRICE CHANGES

May 20—Magnolia Petroleum Co. advanced Luling crude 10 cents to 90 cents.

May 21—Standard Oil Co. of Louisiana advanced Urania crude 10 cents to $1.10. The Atlantic Oil Producing Co. and the Louisiana Oil Refining Co. advanced Stephens, Ark., crude 20 cents for all gravities.

May 22—Magnolia Petroleum Co. and the Standard Oil Co. of Louisiana advanced North Louisiana and El Dorado, Ark., crudes, including Cotton Valley above 36 gravity, from 17 to 41 cents, making oil below 28 gravity $1; 28 to 28.9 gravity $1.05 and a 5-cent differential posted per degree increase in gravity to 44 and above at $1.85. Cotton Valley crude below 36 gravity posted at 85 cents, an advance of 10 cents. Joseph Seep Purchasing Agency advanced Corning, Cabell and Somerset crudes 15 cents.

May 23—Standard Oil Co. of Indiana advanced Dundee, Mich., crude 10 cents to $1.10 for boat shipment. Ohio Oil Co. advanced Sunburst, Mont., crude 10 cents to $1.75.

CRUDE OIL PRICES

(Continued from Page 149)

SOUTH CENTRAL AND SOUTHWESTERN TEXAS

Luling (May 2)*	$ .90
Mirando (May 20, 1929)†	.90
Salt Flat (May 20, 1929)§	1.25
Rockdale-Minerva (April 15):	
Below 28 gravity	1.25
28-38.9 gravity	1.27
39-39.9 gravity	1.29
40 and above	1.31
Thrall‡	...
Callihan (May 15)	1.75
Lytton Springs (Lockhart)	See gravity table
Somerset	See gravity table

*Posted by Magnolia Petroleum Co.
†Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co.
‡Thrall prices same as North Central Texas less 19½ cents per cwt. freight.
§Humble Oil & Refining Co.

EASTERN STATES
Joseph Seep Purchasing Agency

(Effective January 4, 1929)

Penna Grade Oil in New York Transit Lines (New York)	$4.10
Bradford District Oil in National Transit Lines (Pennsylvania)	4.10
Penna Grade Oil in National Transit Lines (Pennsylvania)	4.00
Penna Crude Oil in Southwest Pennsylvania Lines (West Virginia)	4.00
Penna Grade Oil in Eureka Pipe Line Lines (Pennsylvania)	3.90
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	3.85
Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia) (May 22, 1929)	1.75
Corning 35-cent Grade Oil in Buckeye Pipe Line Co.'s Line (May 22, 1929)	1.80
Corning 25-cent Grade Oil in Buckeye Pipe Line Co.'s Lines (May 22, 1929)	1.90
Somerset Oil in Cumberland Pipe Line Lines (Kentucky) (May 22, 1929)	1.80
Ragland Grade Oil in Cumberland Pipe Line Lines (Kentucky) (Jan. 29)	.60

MIDDLE WESTERN STATES

Ohio Oil Co.
(Effective May 21, 1929)

Lima	$1.80
Wooster	1.90
Illinois	1.75
Indiana	1.57
Princeton	1.75
Plymouth	1.28
Waterloo (November 17, 1926)	1.35
Western Kentucky	1.83
Dundee, Mich. (May 23, 1929)‖	1.10
Midland, Mich. (April 15, 1929)*	1.50
Saginaw, Mich., Saginaw Sand (February 10)†	1.89
Saginaw, Mich., Berea Sand (February 10)†	1.79
Cumberland, Clay, Barren, Clinton and Monroe Counties, Kentucky, (March 15)‡	1.50
Oil in line in Stoll Oil Refining Co. in Oil City, Ky. (May 1, 1929)‖	1.65
Oil Springs (Canada)¶	2.27
Petrolia (Canada)¶	2.20

*Posted by Pure Oil Co.
†Posted by Sun Oil Co.
‡Posted by Paragon Development Co.
§Posted by Stoll Oil Refining Co.
¶Posted by Imperial Oil Co., Ltd.
‖Posted by Standard of Indiana for boat shipment.

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Oils Act Well in a Declining Market

Reason for Gratification Found in Fact that No Group of Securities Offered Firmer Resistance to Selling Pressure

In a stock market which saw high-grade issues touch new lows in the last week there was reason for gratification in the fact that no group of securities offered a firmer resistance to selling pressure than the oils. Following the downward plunge in the market on Monday of this week, the oil shares manifested a steadier tone the next day, with Atlantic Refining, Sinclair and Prairie Pipe among those which afforded special grounds for optimism. Belief was expressed that the oils were generally in good position for healthy recovery and early movement to higher levels than have prevailed so far this year.

Twenty Representative Stocks

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb, based on closing quotations for Saturday, was as follows:

Jan. 26	57.44	March 30	58.57
Feb. 2	57.55	April 6	58.26
Feb. 9	55.28	April 13	58.52
Feb. 16	55.35	April 20	58.46
Feb. 23	54.92	April 27	58.34
March 2	56.43	May 4	59.13
March 9	55.96	May 11	59.75
March 16	58.63	May 18	59.30
March 23	58.52	May 25	57.73

Lone Star Gas

Stockholders of Lone Star Gas Corp. will vote June 24 on directors' proposal to increase authorized capital stock to 7,000,000 shares of no-par value from 2,000,000 shares of $25 par, and to exchange two and one-half shares of the new no-par stock for each share of the present $25-par stock.

Dixie Gas

Dixie Gas & Utilities Co., a subsidiary of United Gas Co., reports first quarter earnings of $198,419, after all charges but before federal taxes, equivalent to 98 cents a share on the 201,550 no-par common shares now outstanding. Gross sales for the period were $732,669. For 12 months ended March 31, the company reports earnings of $72,394 also after all charges but before federal taxes, equivalent to 36 cents on each common share under present capitalization. Gross sales for the same year were $1,896,105.

Indiana Pipe Line

Indiana Pipe Line Co. has called a special meeting of stockholders for Huntington, Ind., on June 25 to vote on a proposal to reduce the company's capital to $3,000,000 of $10 par value from $5,000,000 of $50 par. According to announcement by president D. S. Bushnell, if the reduction in capital is approved by stockholders the company will be in position to distribute to stockholders assets not required for the proper operation of the company, and also to exchange three shares of the new $10 par stock for each present share of $50 par. At the close of 1928, the company reported surplus of $593,244, with assets totaling $9,883,073.

Mountain Producers

Mountain Producers Corp. and subsidiaries report for year ended December 31, 1928, profit of $3,155,810 after expenses and royalties but before depletion and federal taxes, comparing with $3,391,986 in 1927. After deduction of $256,785 federal and state taxes profit before depletion was $2,899,025. Profit and loss surplus December 31, 1928, after deducting dividends amounting to $4,143,379 and depletion for 1928 and surplus adjustments for current and prior years aggregating $3,095,623, was $12,286,744.

John T. Barnett, president of Mountain Producers Corp., states in annual report that definite plans are under way for carrying on more extensive operations for expansion in other fields and states. This will probably take the form of a subsidiary company to be owned and financed jointly by Mountain Producers Corp. and Salt Creek Producers Association. Stockholders will be further advised of the progress of this work in the near future. Regarding operations in 1928, Mr. Barnett says royalty interests aggregating approximately $500,000 in cost were acquired in Salt Creek during the past year as an investment and to simplify operations.

Balance sheet of Mountain Producers Corp. and Wyoming Associated Oil Corp. as of December 31, 1928, shows current assets of $9,466,407, of which $2,390,949 is cash and $5,244,422 interest in crude oil in storage at cost. Current liabilities total $1,348,144.

Cosden & Co.

Reports of Cosden & Co., Inc., and subsidiaries, from February 4, 1928, shows net income (including $349,849 profit from sale of leaseholds) of $769,991 after expenses, depletions, depreciation, federal taxes, etc. Preferred 7 per cent cumulative stock outstanding amounts to $3,500,000, par value $100, while common stock is given as 100,000 no-par shares, of which at December 31, 1928, certificates outstanding represented 69,500 shares, with certificates covering balance of 30,500 shares to be issued subject to agreement with J. S. Cosden. Name of company has been changed to Cosden Oil Co.

Continental Oil

The name of Prudential Oil Corp. has been changed to Continental Oil Co. Prudential Oil was acquired this year by Marland Oil Co., which has made offer for Continental Oil Co. of Maine properties. Marland will change its name to Continental Oil Co. of Delaware.

Pure Oil

Featuring the report of Pure Oil Co. for the fiscal year ended March 31, 1929, is the largest income from operations in the history of the company. The company reported operating income of $22,510,254, an increase of $8,301,947 or 58 per cent over the $14,208,307 in the preceding period, in which the margin of profit was abnormally small. Total income was $23,106,408, which was $7,651,208 in excess of the $15,455,200 in the fiscal year ended March 31, 1928, but was slightly below the $24,801,725 in the 1926 year, when income from sources other than the company's own operations amounted to $2,812,771.

After federal taxes, interest, depreciation, depletion, subsidiary preferred dividends, etc., net income was $11,224,081, equivalent to $3.05 a share on 3,038,370 shares of $25 par common stock, compared with $4,710,585 or 97 cents a share in the preceding year.

Philadelphia Co.

Philadelphia Co. declared the usual extra dividend of 75 cents and the regular quarterly dividend of $1 on the common. Both the extra and the regular dividend are payable July 31 to stock of record July 1. The company also declared regular semiannual dividend of $1.25 on the 5 per cent preferred, payable September 2 to stock of record August 10.

U. G. I.

Directors of United Gas Improvement Co. have voted to change present capitalization of the company from 6,000,000 shares of $50 par common to 35,000,000 shares of no-par common and 5,000,000 shares of $5 cumulative preferred. Special stockholders' meeting has been called for August 17 to act upon proposed change in capitalization. Subject to favorable action of stockholders, each share of present U. G. I. $50 par common will be exchanged for five shares of new no-par common stock and one-eighth of a share of new $5 dividend preferred. It is also proposed to offer holders of new common stock of record October 31 the right to subscribe at $20 a share to additional new common on the basis of one new share for each ten shares then held.

Mexican Petroleum

Mexican Petroleum Co., Ltd., of Delaware, and subsidiary companies report for year ended December 31, 1928, consolidated net profit of $8,293,338 after intangible development costs, interest, depreciation, depletion and federal taxes, equivalent after 8 per cent preferred dividends, to $16.03 a share earned on 457,300 shares of common stock. This compares with $12,711,702 or $25.69 a share in 1927.

Anglo-American Oil

Anglo-American Oil Co., Ltd., declared final dividend of 7½ per cent on the £1 par common stock for the year 1928, free of income tax, payable June 5. This is equivalent to 1s 6d. The interim dividend for the year 1928 was omitted by the company last December, the last previous dividend having been a final payment of 1s for the preceding year, paid June 6, 1928.

Phillips Petroleum

Phillips Petroleum Co. declared the regular quarterly dividend of 37½ cents, payable July 1 to stock of record June 14.

The Texas Corporation

The Texas Corporation declared the regular quarterly dividend of 75 cents, payable July 1 to stock of record, June 7.

INDEPENDENT OILS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Kennedy Building, Tulsa, Okla.

1926 High	1926 Low	1927 High	1927 Low	1928 High	1928 Low	Par value	Stocks	For week ended May 24 Sales	Open	High	Low	Last
$6.75	.45	2 1/16	.55	1½	.53	$5	Amer. Con. Oilfields	5,800	5/8	7/8	3/8	½
..	..	7½	2¾	9½	3½	N.P.	Amer. Maracaibo	3,800	4¾	4¾	4⅜	4½
..	..	2¾	1	4½	2¼	$10	Argo Oil	2,600	3	3	2⅜	2¾
85¼	60	40	20½	55	32¾	N.P.	British American	No sales.				
28⅜	9¼	28¼	15½	4½	3⅞	25c	Carib. Syndicate (new)	4,900	4⅝	4½	3⅝	3¾
..	..	58¾	40¼	90⅞	54	$20	Cities Service	310,600	28½	29½	24	29⅜
..	..	95⅜	87	103½	94½	100	Cities Service, pfd.	1,000	98	98½	98	98½
..	..	8⅞	7⅜	9⅝	8⅞	10	Cities Service, pfd. B	400	9	9	9	9
3½	1¾	3⅞	1⅛	3¼	76	1	Colombia Syndicate	900	1	1⅛	1	1⅛
..	..	9¾	6⅜	8⅞	6¼	10	Consolidated Royal	300	7	7	6¾	6¾
16	10	14⅞	9½	17½	9½	N.P.	Creole Syndicate	15,400	8½	8½	8	8⅜
..	..	3	.50	3¼	.76	N.P.	Crown Central	1,200	1¾	1⅞	1⅝	1⅝
7⅛	6¾	12	4	33½	3¼	N.P.	Darby Petroleum	3,100	15	15¾	15	15¼
..	..	2½	74	2¼	1	N.P.	Derby Oil & Refining	7,300	6¼	8½	6⅝	7½
..	..	16¾	4	21⅛	7½	N.P.	Derby Oil & Refining, pfd.	600	32½	37¾	32½	37¼
..	..	2	.40	.53	.15	N.P.	Gilliland ctfs.	No sales.				
98	92	118	86¼	165	101⅛	$25	Gulf Oil Corp.	1,400	185½	185¾	170⅛	172⅜
$3.00	.83	2½	.80	3⅜	1	5	Intercontinental Pet.	41,200	2⅞	2⅞	2	2⅜
..	..	2¼	1⅛	3	1¼	N.P.	Kirby Petroleum	7,800	1¾	2⅛	1¾	1⅞
12¼	5¾	10⅞	5⅛	9⅜	5⅛	25	Leonard Oil & Dev.	3,400	5	5	3½	5
27	20	27½	20	43⅞	20	N.P.	Lion Oil & Refining Co.	1,300	35⅛	35⅜	32½	34⅞
46	30	59⅜	37	69⅛	48⅛	$25	Lone Star Gas	4,000	76½	80	74½	80
2⅞	1	2⅞	.80	1⅞	.50	1	Magdalena Syndicate	3,500	½	½	½	½
34	12½	52	12	48½	32	N.P.	Margay Oil	200	2½	2½	2½	2½
8	5½	12⅛	5	8	2¾	N.P.	Mexico-Ohio Oil	No sales.				
1¾	1⅛	1½	1	1¾	.76	$1	Mountain & Gulf	600	1	1	1	1
26	23	29¼	22¾	28⅞	19½	10	Mountain Producers	3,800	17⅝	17½	16¾	16½
6⅝	5	5⅞	4⅝	5⅝	4¼	5	New Bradford	600	4	4¼	4	4⅛
..	..	16	9¼	11⅞	7⅛	1	New Mex. & Ariz.	1,400	6¼	6¼	6	6
..	..	12¾	9½	14¼	8½	N.P.	North Central Texas	No sales.				
10⅛	5⅞	9⅜	3¼	6	2⅛	N.P.	Pandem	6,300	2	2½	2	2¼
12¼	11¾	12⅛	7	15⅝	8½	N.P.	Pantepec Oil	1,900	7	7	6⅞	7
22¾	12	13½	5⅛	7¾	4⅞	N.P.	Pennok Oil	No sales.				
17	8½	24⅜	7	18	4⅞	25	Red Bank Oil	No sales.				
30¼	12	15½	3½	12⅞	4⅛	N.P.	Reiter-Foster	15,500	6⅞	8¼	5¼	5⅞
7	4½	7	4½	12	4⅛	N.P.	Ryan Consolidated	400	7½	7½	7⅛	7⅛
10	7⅛	8	5¼	7¼	5½	$10	Salt Creek Cons.	400	3½	3½	3¼	3⅜
35	24⅛	35½	27¼	35	23⅛	10	Salt Creek Prod.	4,400	19⅝	19⅝	18	18
6⅞	1¼	7	1¼	3½	1	5	Savoy Oil	No sales.				
27	7⅝	26½	17	22⅞	13	10	Tidal Osage	No sales.				
25¾	7⅝	23¾	15	21¼	13⅛	10	Tidal Osage, nonvoting	No sales.				
92	63½	92	63½	93¾	75	100	Transcontinental, pfd.	3,100	105	125	98	99
8	4½	7⅜	4¼	9⅛	4¾	5	Venezuelan Petrol	7,400	4½	4½	3⅝	4
8⅛	5½	8	4¾	8¼	4⅞	$1	Woodley Petroleum	2,300	5½	5½	5⅛	5½
6½	6	6	1¾	8⅜	2⅛	25	Y Oil & Gas (new)	300	2½	2½	2¼	2⅛

TRANSACTIONS IN OIL SHARES ON NEW YORK STOCK EXCHANGE

Quotations Compiled by Francis, Bro. & Co., Members of New York Stock Exchange, Kennedy Building, Tulsa, Okla.

1926 High	1926 Low	1927 High	1927 Low	1928 High	1928 Low	Listed capital	Par value	Stocks—	Div. rate	Last paid	For week ended May 24 Sales	Open	High	Low	Last	Change
32⅞	24¼	37⅝	27⅝	43⅞	27⅛	(sh) 922,075	N.P.	Amerada Corp.	50cQ	Oct. 31, 28	29,800	28½	28¾	22½	25	—3⅛
74	39⅞	82½	35⅛	85	51¼	(sh) 209,180	N.P.	American Republics Corp.	.....	.....	6,500	49½	51	47	49	—1
60	44⅜	50¼	35	53⅜	37½	$57,260,300	$25	Associated Oil	50cQ	Dec. 31, 28	34,000	....	45	43	43	—2
128⅜	97	131⅝	104	66⅜	50	50,000,000	25	Atlantic Refining	25cQ	Dec. 15, 28	1,596	68⅞	68⅞	64½	65⅜	—2⅝
33½	23½	35½	20¾	53	20	35,194,000	25	Barnsdall Corp.	50cQ	Feb. 5, 29	75,800	44⅞	45⅞	42¼	43	—2⅞
94½	50	96¾	65	94⅞	68	20,785,400	100	General Asphalt	.....	.....	64,800	83⅞	84½	79¼	80½	—2¼
72	50¼	175⅝	60¼	167	79	25,000,000	100	Houston Oil	.....	.....	11,400	92	92¼	81	82½	—10½
34	19⅝	32¾	17⅝	38⅜	21¾	(sh) 959,457	N.P.	Independent Oil & Gas	50cQ	Jan. 31, 29	44,600	38	38¼	36½	37	—1
12¾	7½	12⅛	7⅝	39⅝	9	8,203,080	$10	Indian Refining	.....	May 31, 24	65,500	45½	45½	40¼	43⅛	+2⅛
25⅞	16½	37¾	20½	39⅛	27⅜	(sh) 3,992,122	N.P.	Lago Oil & Transport	.....	May 1, 27	400	...	29⅜	28¾	28¾	—1¼
19⅞	12	18⅛	10	19¾	9⅜	(sh) 1,237,078	N.P.	Louisiana Oil Refining	.....	.....	16,100	14	14¼	13½	13⅝	—⅝
28	16½	22¾	12	25½	12½	(sh) 330,000	N.P.	Maracaibo Oil	.....	.....	2,100	15⅜	15⅜	14⅛	15⅜	—½
63⅜	49¼	58½	31	49¾	33	(sh) 2,316,692	N.P.	Marland Oil Co.	.....	Mar. 31, 27	56,000	38	38¼	36	36⅛	—1⅞
13¾	6	9¼	3	73	4⅝	(sh) 945,939	N.P.	Mexican Seaboard	.....	Dec. 15, 20	39,800	50¾	51¼	46	48	—3
37	20½	39⅜	25½	44½	25⅛	(sh) 1,357,461	N.P.	Mid-Continent Petroleum	50cQ	Feb. 15, 29	26,400	36	36⅜	34⅞	35	—⅞
104¼	90	105	97	120½	103¼	$6,718,000	$100	Mid-Continent Petroleum pfd.	$1.75Q	Sept. 1, 28	No sales.					
2½	½	3¾	1⅝	7⅜	2⅜	24,298,850	10	Middle States	.....	July 1, 23	34,800	4¼	4⅜	4	4⅛	
76½	56¾	65⅞	40⅛	54⅞	38¼	$48,807,400	$50	Pan American P. & T.	.....	Oct. 20, 27	65,400	59½	61	58⅞	60	+½
78⅜	56⅞	66⅜	40¼	58⅞	37¾	121,097,900	50	Pan American P. & T. B.	.....	Nov. 15, 24	303,800	62⅜	64¼	60¼	61⅜	—1¼
46	30	37⅞	16¾	28⅜	15½	(sh) 400,000	N.P.	Pan American Western B.	.....	Jan. 30, 27	200	14½	14½	14½	14½	
32	4½	18⅞	8	21⅜	11½	(sh) 198,770	N.P.	Panhandle P. & R.	.....	.....	3,300	12	12	10½	10½	—1⅜
99⅜	51	83	54	108	70	$2,935,200	$100	Panhandle P. & R. pfd.	.....	July 2, 23	No sales.					
57⅜	40	60¼	36¼	53⅞	35¼	(sh) 2,406,796	N.P.	Phillips Petroleum	37½cQ	Jan. 2, 29	200	40⅛	41½	39⅝	40¼	—¾
....	....	1⅛	½	5¼	½	$29,622,925	$25	Pierce Oil Corp.	.....	.....	9,200	2½	2⅝	2⅜	2⅜	—⅛
7	2¼	5½	2½	7	3½	(sh) 2,500,000	N.P.	Pierce Petroleum	.....	.....	8,200	4⅞	4⅞	4½	4⅝	—⅛
60¼	48	55½	45⅝	68	46	60,000,000	25	Prairie Oil & Gas	.....	Aug. 31, 27	20,700	57¼	58¼	56⅛	57	—¼
137½	122½	190	130¾	280	172	$101,250,000	$25	Prairie Pipe	75cQ*	Mar. 31, 29	4,400	60⅜	61	60	60⅛	—⅜
20¾	11	33⅞	16¾	29⅞	16	$37,450,850	$50	Producers & Refiners	.....	Sept. 15, 23	2,900	21	21	18⅞	19½	—1
41¾	30¾	50	36⅞	49⅝	41	2,845,350	50	Producers & Refiners pfd.	.....	May 1, 25	33,000	41⅞	42	41¾	41¾	—1⅜
31	25¼	33½	25	31⅝	19	75,959,350	25	Pure Oil Co.	25cQ	Dec. 1, 28	80,100	29½	30	27⅞	28¼	—1½
27½	22	28⅝	25⅜	56	23	47,025,000	$25	Richfield Oil	.....	Nov. 15, 28	23,200	46⅝	46⅝	44	44⅜	—1⅝
57⅜	47⅜	54½	44¼	64	44⅝	(sh) 611,303	13.40	Royal Dutch, N. Y. shares	50cQ	Jan. 10, 29	3,700	52⅞	52⅞	51½	52	—½
48⅝	40½	47⅞	41⅝	57½	40⅝	(sh) £30,000,000	£1	Shell Transport & T.	$1.455	July 23, 28	No sales.					
31	24	31⅜	24⅝	39¼	23¼	(sh) 20,000,000	N.P.	Shell Union Oil	35cQ	Dec. 31, 28	27,200	29⅜	29⅝	28½	28½	—1½
28⅝	15⅛	26⅜	14¼	27¼	18⅛	$8,357,000	$10	Simms Petroleum	10cQ	Dec. 15, 28	44,000	30	30	28¼	30	+½
24⅞	16¾	22⅝	15	46¾	17⅜	(sh) 4,501,915	N.P.	Sinclair Consolidated	.....	.....	651,400	38¼	40⅞	37¾	40	+2
99½	90	104½	97	110	102½	$16,604,600	$100	Sinclair Consolidated pfd.	$2Q	Nov. 15, 28	1,000	108½	108½	108	108	—½
37⅛	28⅝	37⅝	24½	42⅝	25	27,396,590	25	Skelly Oil Co.	50cQ	Dec. 15, 28	35,200	43⅜	43⅜	40⅜	41	—2⅜
63⅝	51½	60¾	50⅝	80	53	(sh) 12,594,098	N.P.	Standard Oil of California	65½Q	Dec. 15, 28	50,500	77⅞	78¼	73¼	73¼	—4⅜
46⅜	37½	41⅜	35⅛	59⅜	37⅜	$611,120,700	$25	Standard Oil of New Jersey	25cQ*	Dec. 15, 28	1,000	59⅝	62⅜	57½	57½	—2¼
47¼	30⅜	34½	29¾	44¼	28¾	427,973,275	25	Standard Oil of New York	40cQ	Dec. 15, 28	99,200	41½	42¼	39¾	40⅛	—1⅝
41⅝	30⅛	34⅞	30	77	31½	(sh) 1,206,073	N.P.	Sun Oil	25cQ	Dec. 15, 28	1,300	63	63	62	62¼	—¾
5¼	1	6½	3⅛	14¼	2½	(sh) 1,267,000	N.P.	Superior Oil Corp.	.....	Dec. 20, 20	54,100	8½	8½	7⅝	8	—½
58	48	58	45	74⅜	50	$211,076,650	$25	The Texas Corporation	75cQ	Jan. 1, 29	42,800	64⅜	65	62½	62⅜	—2
19½	12	18⅞	12	26⅝	12⅛	8,380,340	10	Texas Pacific Coal & Oil	.....	Jan. 3, 28	26,200	19⅞	19⅞	18⅛	18¼	—1¼
39¼	27	29⅛	19	41½	19⅝	(sh) 2,168,410	N.P.	Tide Water Oil Co.	20cQ	Dec. 15, 28	7,400	37½	37⅝	35⅝	36¼	—1⅝
103	87¼	90⅛	85	100⅛	86	$20,705,200	$100	Tide Water Oil Co. 5% pfd.	65½cQ	Dec. 15, 28	900	93¼	94¼	93¼	93¼	—¾
27	20⅞	19⅛	15¾	25	14⅜	(sh) 4,796,158	N.P.	Tide Water Associated	.....	Aug. 1, 27	69,200	21	21¼	19⅜	20⅝	—½
5½	3	10⅜	3¾	14¾	7¼	(sh) 3,742,029	N.P.	Transcontinental Oil	.....	.....	3,100	13⅞	24⅛	12¼	12¾	+½
58⅜	37¼	56½	39⅝	58	42¾	$94,798,100	$25	Union Oil of California	50cQ	Nov. 10, 28	23,900	49½	50	47¾	49¼	—1⅜
120⅜	84¼	127½	94	128⅛	110	31,061,200	100	Union Tank Car Co.	$1.25Q	Dec. 1, 28	800	138	138	133	133	—6¾
30⅛	23½	34½	24½	44⅞	26	(sh) 356,000	N.P.	Warner Quinlan	50cQ	Jan. 2, 29	8,300	33½	33½	31⅛	31⅜	—2
29¾	25⅛	27½	20	38	20⅛	(sh) 490,000	N.P.	White Eagle Oil & Refining	50cQ	Jan. 20, 29	6,800	35⅜	36⅛	34⅝	34⅞	—¼
								Wilcox Oil & Gas	.....	.....	4,300	25⅝	25⅝	23	23⅝	—2⅜

*Also extras. †Ex-dividend.

STANDARD OIL STOCKS ON NEW YORK CURB

21	16	21⅝	17⅞	22⅜	14⅞	£4,126,460	£1	Anglo-American Oil	.....	June 6, 28	1,700	16	16	15	15	
....	....	3¾	¾	5	1¼	(sh) 500,000	N.P.	Atlantic Lobos	.....	.....	200	....	...	....	....	
76	65	69	50	56½	44½	1,000,000	25	Borne Scrymser	$18.A.	Oct. 15, 28	150	38¼	38¼	38¼	38¼	
59½	42	60	45	76	53	10,000,000	50	Buckeye Pipe Line	$1Q	Dec. 15, 28	200	70½	70½	70¼	70⅛	
82½	65	126	76½	161	117	3,000,000	25½	Chesebrough Mfg.	$1Q	Dec. 28, 28	400	168	168	164¼	165	
25⅞	17½	22⅝	16¼	23	16	36,057,840	10	Continental Oil	.....	Dec. 15, 27	20,000	22¼	22⅝	21¼	21⅜	
137	102	137	89	114	67	1,500,000	50	Cumberland Pipe Line	$1A	Dec. 15, 28	No sales.					
63¾	43	68½	47	88	64⅛	5,000,000	100	Eureka Pipe Line	$1Q	Nov. 1, 28	200	63	65	62	65	
32½	9⅞	13½	3½	13	4¼	16,000,000	100	Galena Signal Oil	.....	June 30, 25	70	73½	73½	73½	73½	
68½	52	68½	54	114⅜	59¼	73,117,577	25	Humble Oil & Refining	30cQ*	Jan. 1, 29	13,800	17¼	18½	15⅝	18½	
144½	125½	182	123¾	290½	176½	20,000	100	Illinois Pipe Line	10%S.A.	Dec. 15, 28	850	319	319	316	319	
....	....	64¾	37¾	104	56¾	(sh) 6,458,267	N.P.	Imperial of Canada	25cQ	Dec. 1, 28						
72½	58	94½	61	91⅞	74⅝	$5,000,000	$50	Indiana Pipe Line	$1Q	Feb. 15, 29	700	95¾	96½	95¾	95¾	
35½	28¾	39	28¼	55	35	(sh) 7,123,444	N.P.	International Petroleum	25c	Nov. 30, 28	1,000	50	51	50	51	
20¾	12½	24	13½	32⅜	19⅜	$6,363,350	12.50	National Transit Co.	25c	Dec. 15, 28	3,300	23¼	24⅛	23⅛	23½	
51½	27¼	44½	31¼	75	38½	5,000,000	*100	New York Transit	.....	July 15, 26	100	83	83	83	83	
80½	64	100	70	69	56½	2,000,000	50	Northern Pipe Line	$38.A.	Jan. 2, 29	100	58	58	58	58	
67¾	55¾	67⅞	52	84	58½	60,000,000	25	Ohio Oil Co.	50cQ*	Dec. 15, 28	9,200	67¾	70	67	70	
24¾	15	39	12	84	28	10,000,000	25	Penn Mex. Fuel	$1.25	Dec. 15, 28	1,000	29¾	29¾	28	28	
220	84½	201½	175½	220	167	4,000,000	100	Solar Refining	$58.A.	Dec. 20, 28	200	43	43	42	42	
74½	61½	27¼	15½	19	15	1,000,000	10	Southern Pipe Line	$2	Dec. 1, 27	600	21⅜	21⅜	20⅛	20½	
50	34½	41½	35	71⅞	36¾	2,000,000	25	South Penn Oil	50cQ	Dec. 31, 28	2,700	54⅞	54⅞	52½	54	
56	47½	83	55½	102	70	3,500,000	100	Southwest Pa. Pipe Lines	$1Q	Oct. 1, 28	250	66	68	66	68	
70½	60½	81½	64⅝	95⅞	70⅞	228,415,463	25	Standard Oil of Indiana	61½cQ	Dec. 15, 28	22,500	56⅞	56⅞	55⅝	56⅜	
36½	16½	20⅞	14⅝	27¾	15	8,000,000	25	Standard Oil of Kansas	.....	June 16, 24	1,200	19	19⅛	19	19	
134⅜	108	130	111½	179⅜	122¼	17,012,559	10	Standard Oil of Kentucky	$1Q	Dec. 31, 28	6,500	38	38¼	36¼	37⅛	
51⅛	42	49½	40	54⅞	39⅞	4,559,850	25	Standard Oil of Nebraska	63cQ	Dec. 20, 28	400	49	49	48⅞	48⅞	
372	288	87½	72	134	71	14,000,000	25	Standard Oil of Ohio	62½cQ	Jan. 2, 29	450	125	125¼	121¼	121½	
21	15	21	14½	23½	16	861,000	25	Swan Finch Co.	.....	Nov. 1, 19	100	14	14	14	14	
109⅜	90¼	....	....	111	72	125,619,000	25	Vacuum Oil	75cQ	Dec. 20, 28	4,100	122½	122½	118½	120	

*Also extras.

"RED HAT" TO BE PUBLISHED

CHICAGO, May 24.—The Independent Oil Men of America announces that official notice has been received from the United States Patent Office that its application for the registration of the words "Red Hat" as a trade mark has been examined and ordered published in the official Gazette of June 11. Under the law 30 days are allowed during which notice of opposition to the granting of the proposed trade mark may be filed. At the expiration of the 30 days the Patent Office may issue a certificate of registration.

COOLEY, SALES REPRESENTATIVE

R. H. Rowland, sales manager of the Bolene Refining Co., Enid, Okla., has appointed A. C. Cooley as sales representative in the State of Minnesota with headquarters at the Antlers Hotel at Minneapolis, Minn.

SHELL P. L. STATEMENT

The Shell Pipe Line Corp.'s crude oil runs from Texas, Oklahoma and Kansas fields in April were 3,377,873.70 bbls., and its shipments to refineries were 3,169,605 bbls.

DYNAMOMETER YIELDS MUCH IMPORTANT DATA

(Continued from Page 33)

portion of the curve from J to A the polished rod has traveled upward 2 inches, the load has increased 2,000 pounds, and the rods, due to this increase, have stretched a total of 6 inches. Therefore, the plunger has continued downward 4 inches while the polished rod has traveled upward 2 inches.

The curve from A to B represents 9 inches of polished rod upstroke and 3,000-pound decrease in load; the 9-inch polished rod travel added to the 9 inches contraction of the rods due to 3,000-pound load decrease has caused the plunger to travel 18 inches upward.

From B to C the polished rod travel is 11 inches; the 3,500-pound load increase causes the rods to stretch 10.50 inches, therefore, the plunger has moved upward only .50 inches. From C to E the polished rod travel is 20 inches and the plunger travel is 35 inches.

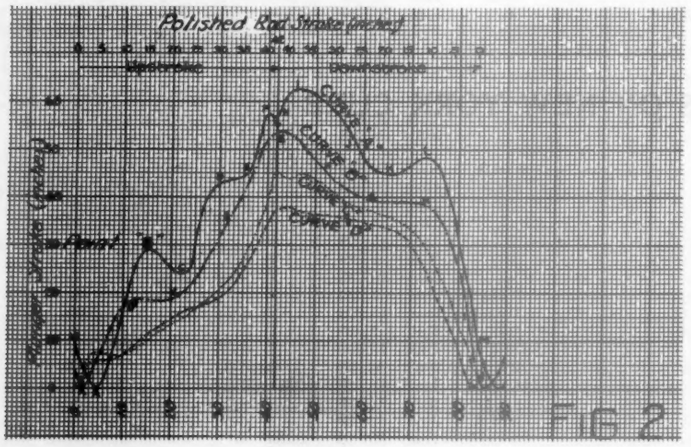
The total plunger travel with respect to a fixed point as shown by this card is approximately 53 inches as compared to 42 inches of polished rod stroke. The plunger travel with respect to the working barrel, however, is slightly less due to stretch and contraction of the tubing.

The force required to overcome the inertia of the rods and fluid is evidenced in the rising load curve HIJA, and is stored in the rods in the form of elastic energy, which reaches a maximum at A, is dissipated through AB, and is of such magnitude as not only to overcome the inertia of the fluid, but once having started it in motion carries it to a point where the tension in the rods is less than that required to sustain the static weight of the rods and fluid (as is evidenced by point B being below the static line).

An Example

An exaggerated example of this condition may be seen by holding one end of a rubber band 8 or 10 inches long, upon the other end of which a weight is suspended. If the weight is thrown sufficiently hard toward the floor it will react from the spring of the rubber band which will contract to such extent that its tension will be less than that required to sustain the weight at rest. The weight will then have a tendency to fall again, but if the band is moved upward at the proper velocity the weight will remain stationary and the upward movement of the hand will supply the tension in the band necessary to keep the weight from falling.

In a modified way, this latter condition occurred between B and C as the polished rod velocity was almost identical with the velocity at which the plunger tended to drop, and the plunger moved upward only .50 inches during 11 inches of polished rod upstroke. Other indicator cards show, however, that in some cases the plunger does drop at or near a point in the pumping cycle corresponding to point B. BC is a less pronounced recurrence of HIJA and likewise the conditions through CD are comparable to those in AB.



The movement of the plunger through one cycle as developed from this card is shown in Curve "B," Figure 2. The Curves "A," "C" and "D" represent the plunger travel at the same well, through one complete cycle, at 25, 20 and 17½ revolutions per minute respectively.

The horizontal scale is a measure of the travel of the polished rod in inches and the vertical scale shows the travel of the plunger with respect to a fixed point. The meaning of these curves may be better understood by selecting any point on one of the curves, such as point B on Curve "A."

The value of B is 15 on the horizontal scale and 29 on the vertical scale, which means that the plunger moved 29 inches upward with respect to a fixed point while the polished rod has moved 15 inches upward. Such eccentricities as are shown by the portion BC of Curve "A," where the plunger travels 5 inches downward during 8 inches of polished rod upstroke, and the portion KL, where the plunger travels 3 inches upward during the polished rod downstroke, obviously contribute materially to depreciation of the rods, particularly under operating conditions where the loads are in excess of the allowable unit stress of the rods; and are also conducive to low volumetric efficiency due to the wide variation in plunger velocities through the upstroke.

Impact Load

The impact load as shown by the portion LMA of Card "A" is resultant from decelerating the falling rods, accelerating them after they have come to rest at the bottom of the stroke, and accelerating the fluid column. If the polished rod velocity from A to E were higher a general leveling of the load curve would result. Points B and D would be higher and point C lower on the card.

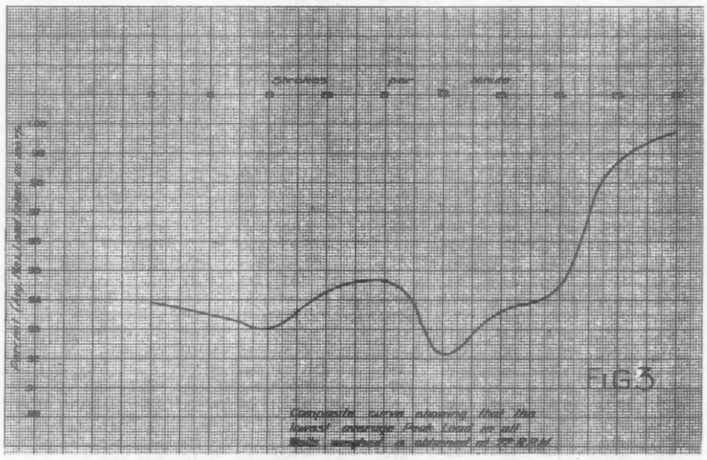
It has been shown that the total stretch in the string of rods at any point in the cycle is directly related to the load at that point. From Card "A," Figure 2 (peak load 18,600 pounds), the calculated stretch at point A is approximately 40 inches more than at point L.

It would be possible by fixing the plunger in a stationary position to operate the walking beam at 42-inch stroke and obtain no plunger travel, even though an indicator card would show a peak load of approximately 18,000 pounds when operating at any number of revolutions per minute. Therefore there is not necessarily a direct relation between total load and plunger travel or velocity. This fact suggested the possibility of the existence of a critical speed at which a pumping well might be operated and at which the peak load would be lower than at either immediately higher or immediately lower speeds. A study of all the indicator cards obtained shows: that at relatively low speeds the peak load occurs near the end of the upstroke that, as the speed is increased, the impact load (at beginning of the upstroke) increases and the peak load (near the end of the upstroke) decreases when approaching 22 revolutions per minute.

A composite curve developed from all the indicator cards is shown in Figure 3. Most of the wells were weighed at speeds ranging from 17 to 26 revolutions per minute, inclusive, and in most cases the maximum load was encountered at 26 revolutions per minute.

The composite curve was developed by expressing the load, at any given number of revolutions per minute, as a per cent of the maximum load encountered at that well, and averaging these values for all wells weighed. The lowest average load was encountered at 22 revolutions per minute. The curve in Figure 3 is based on averages and is not applicable to all wells.

The critical speed is dependent on the relation of local pump plunger velocities to local polished rod velocities. Due to the similarity of conditions which regulate pump plunger velocities in the wells weighed, such as length and cross-sectional area of the rods, dead weight of fluid and rods, etc., the critical speed is approximately 22 revolutions per minute when operating at 39-inch, 42-inch, 52-inch and 62-inch strokes. No information is available for other lengths of stroke.



Within reasonable limits, increasing or decreasing the length of the stroke will not appreciably affect or change the critical speed, for, since the critical speed is dependent on the relation of local polished rod velocities to local pump plunger velocities, an increase in length of stroke will result in higher impact load which will impart higher velocity to the pump plunger, such increase in pump plunger velocity being substantially equaled by the increased polished rod velocity due to the longer stroke. Therefore, "critical speed" refers to number of strokes per minute rather than mean polished rod velocity.

To Establish Accuracy

In an effort to establish the accuracy or inaccuracy of indicator card analysis a 4,000-foot well equipped with 1,300 feet of seven-eighth-inch rods, 2,700 feet of three fourth-inch rods, 2½-foot tubing and a 1½-inch insert type barrel was fitted with a means of marking the plunger rod during the pumping cycle so that the actual length of plunger stroke could be measured. A small hole was drilled through the wall of the cage on top of the barrel and a sharply pointed piece of hard steel was placed in the hole and held by means of a spring and threaded plug against the plunger rod with sufficient force to mark the plunger rod as it moved through the cage during the pumping stroke.

Although it was impossible, by this method, to establish a relation between the increments of travel of the pump plunger and the increments of travel of the walking beam, it was assumed that, were it possible by indicator card analysis to approximate the actual measured plunger travel, the theories used in the calculations were basically correct.

The well was operated for 15 minutes at twenty-six 32-inch walking beam strokes per minute and was weighed during the early part of this 15-minute period before the well had "pumped up" appreciably. The indicator card "A," Figure 4, was obtained in this test and the plunger stroke as calculated from the card is 46.4 inches. The plunger rod was then removed from the well and the measured stroke as shown by the scored rod was 47 inches. Note that the actual plunger stroke was 15 inches longer than the polished rod stroke and that the difference between the actual stroke and the calculated stroke is only .6 inches.

Another Test

A new plunger rod was used in the next test, on the same well. The well was pumped up in 2 hours and 50 minutes at twenty 32-inch strokes per minute, was weighed immediately thereafter when operating at twenty-six 32-inch strokes per minute and was operated for 12 hours at twenty-six 32-inch strokes per minute.

The length of stroke as calculated from the indicator card obtained in this test (Card "B," Figure 4) was 40.8 inches. The measured stroke on the plunger rod was 42 inches. During the 12-hour run the plunger rod had rotated and its surface, over a distance of the length of plunger stroke, was polished.

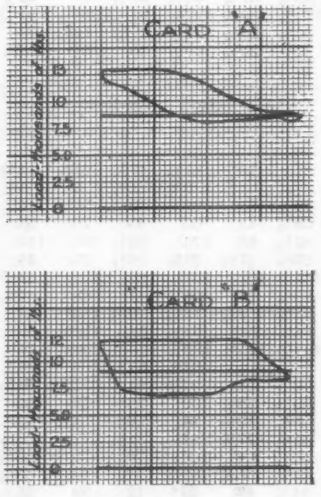


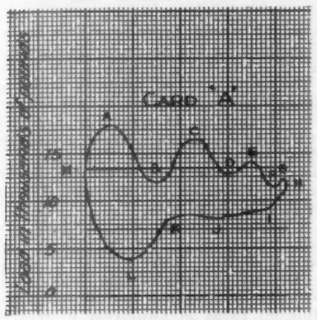
Figure 4.

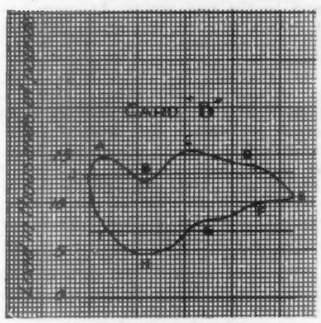
These tests were considered insufficient thoroughly to establish the accuracy of the theories involved in the calculations. Another well was similarly fitted with a means of marking the plunger rod. This well was equipped with 1,275 feet of seven-eighth-inch and 2,725 feet of three-fourth-inch rods, 2½-foot tubing and 2½-inch plunger type barrel. Inasmuch as the plunger operated under a full load at all times during the following tests (due to the fact that the standing valve kept the fluid in the tubing while pulling and running the plunger) these tests were considered more conclusive than those tabulated above. The plunger stroke at this well was measured at eighteen, twen-

ty-two and twenty-four 52-inch strokes per minute. The results follows:

No. Strokes Per Minute	Polished Rod Stroke (in.)	Calculated Length Plunger Stroke	Actual Length Plunger Stroke (in.)
18	52	52.8	52
22	52	59.6	61
24	52	65.5	66

These findings are presented as a means of establishing as a fact the possibility of determining from the indicator cards such information as will allow definite and accurate conclusions as to the most advantageous adjustment of the length and frequency of walking beam stroke so





that maximum mechanical efficiency may be obtained from the rods and plunger.

Rods

Some rod manufacturers recommend that rods be subjected to a maximum operating unit stress not in excess of 22,000 pounds. Records of rod trouble compared with the indicated loads at the specific wells, establish the general practicability of accepting this figure as a limit.

Dynamometer tests show that when operating with three-fourth-inch rods at all the wells weighed the maximum unit stress (at heaviest well) is 41,000 pounds (19,000 pounds in excess of recommended maximum). The minimum unit stress (at lightest well) is 26,000 pounds (4,000 pounds in excess of recommended maximum). The average unit stress (based on all wells weighed) is 35,300 pounds (13,300 pounds in excess of the recommended maximum).

At some of the wells the unit stress due to the dead weight of fluid and the rods is in excess of the recommended maximum, and without exception, an excessive amount of rod trouble has been encountered at such wells. "Tapered" strings of rods have been installed in a number of 4,000-foot wells. These strings consist of approximately 1,500 feet of seven-eighth-inch rods at the top, the remainder being three-fourth-inch rods. Based on the 15,600-pound average load computed from the indicator cards, the installation of "tapered" strings has reduced the average unit stress to 27,000 pounds, which has resulted in materially reducing the amount of down time at these wells due to rod breakage.

Counterbalances

a—Grasshopper Type

The effectiveness of rotative type and grasshopper type counterbalances was tested. Figure 5 shows the effective weight of a grasshopper type counterbalance as compared with the polished rod load at a 4,000-foot well when operating at eighteen 52-inch strokes per minute. Curve "A" is a reproduction of Card "A" as a continuous curve and at enlarged scale, and shows the polished rod load in thousands of pounds (as read on the vertical scale) through one pumping cycle. Curve "B" is a reproduction of Card "B" as a continuous curve, at enlarged scale and shows the effective weight of the counterbalance in thousands of pounds (read on vertical scale), through one pumping cycle. Card "B" was obtained by imposing the dynamometer between the walking beam and the counterbalance and recording the varying weight of the counterbalance in the same manner that the rods were weighed.

The varying position of the walking beam throughout the cycle is read on the horizontal scale. The shaded areas between the two curves represent those portions of the cycle in which the band wheel is driving the belt and the tension in the belt during these portions is in the upper half, or along the top of the clutch pulley and band wheel. The nonshaded areas represent the portions of the cycle through which the belt is driving the band wheel and the tension in the belt is along the bottom of the clutch pulley and band wheel.

During one cycle there are six reversals of forces, or jerks on the belt, first in one direction and then the other. Through CD and EF on Curve "A" the pitman pushes the walking beam and counterbalance upward, and through BC, DE and FG the walking beam is pulling the counterbalance and pitman upward. These reversals contribute materially to depreciation of the entire pumping equipment. On Curve "B" the suddenly decreasing loads through Hh, Ii and Jj and the increasing loads through Kk, Ll and Mm are due to firing of the engine.

b—Rotative Type

The rotative type counterbalance examined was of the type which is suspended from the band wheel shaft and is bolted to and actuated by the crank. There are four adjustments for the position of the center of gravity of the counterbalance with respect to the crank. The construction of the counterbalance is such that layers or sheets of metal may be removed or added to decrease or increase its weight and further alter the position of its center of gravity.

The most advantageous adjustment of the weight and position of the rotative type counterbalance may be learned from a study of the indicator cards of rod

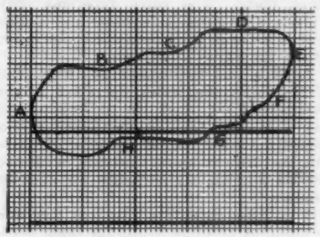


Figure 6.

strains in conjunction with tachometer readings of engine speeds. The results of the investigation of the rotative type counterbalance are considered inconclusive and the investigation will be continued.

Tests on several wells show that local variations in engine speed are pronounced due to impulse of the engine. The tachometer showed almost instantaneous increase of about 20 engine revolutions per minute. (Part of this observed increase may have been due to inertia of tachometer parts.) This condition may be detrimental to the entire pumping equipment (especially destructive to belts), and may be alleviated materially, or brought within desired operating limits, by the installation of heavier fly wheels. The effect on the rod load of the acceleration due to impulse may be seen opposite the letters a, b, c, d, e, f, g and h in Figure 6.

Conclusions

From dynamometer analysis it is possible to determine:

Maximum and varying load on rods.

Maximum and varying unit stress in rods.

Approximate length of plunger stroke.

Approximate plunger velocities.

Dead weight of counterbalance (Grasshopper).

Varying effective weight of counterbalance (Grasshopper).

Mean effective weight of counterbalance (Grasshopper).

Correct weight of counterbalance (Grasshopper).

Based on this information changes can be made in size of equipment and method of operation to secure increased efficiency in operating pumping wells.

LESSONS LEARNED FROM GASOLINE PLANT FIRES

(Continued from Page 145)

valve is to be used frequently. Although these valves may be left open or closed as well as a nonrising stem valve, you can tell at a glance whether or not the valve is open or closed. Notwithstanding the fact that we install automatic controls to take care of certain operations, it must be borne in mind they are mechanical, may fail to function, and must be checked occasionally to see that they are ready for an emergency.

In the summing up of the two gas-lift station accidents in the Seminole Field referred to in the paper previously read, it brings to me a thought that all blow-off or bleeder lines should be equipped with a swing-check valve so in case it is necessary to unload suction scrubber tanks, and in case of starting up again and failure to close the gate valves, the chack would automatically close when the scrubber approached an atmospheric pressure, shutting off the inrush of air, eliminating the danger of an explosion.

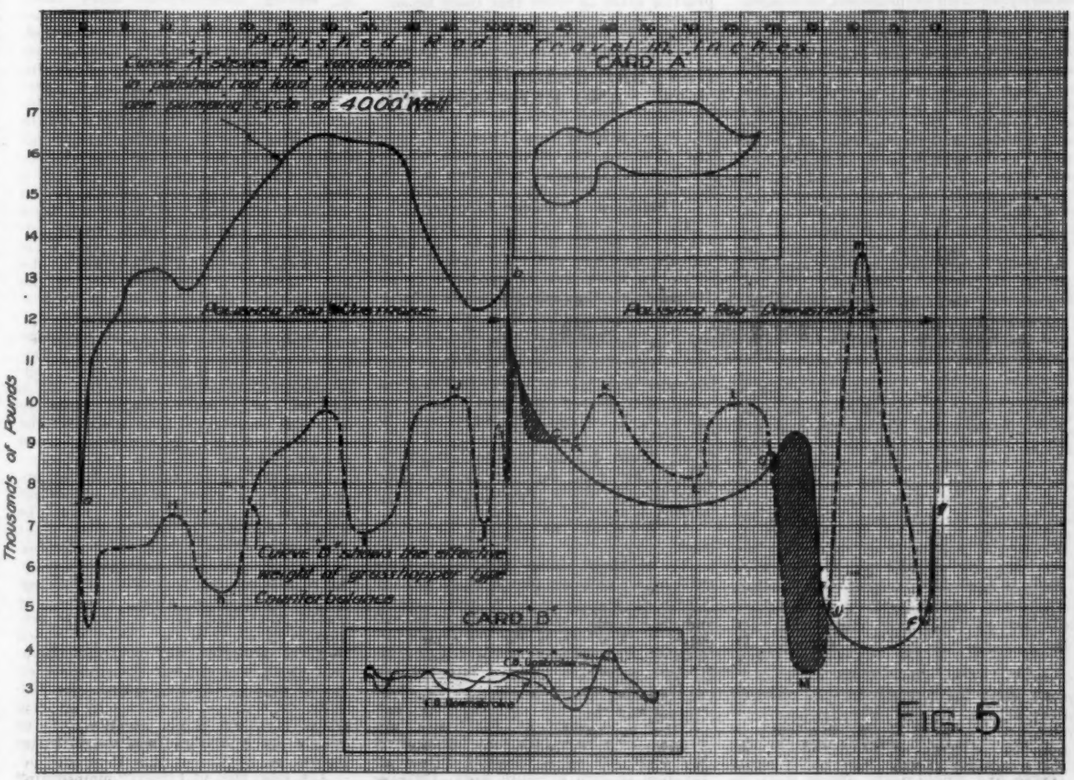
Oil Explosion

In the case of the 12-unit plant explosion from lubricating oil becoming ignited in discharge lines, this leads to the necessity of the installation of filters or oil separators just after each stage of compression for the collection of any excessive lubrication of cylinders. The majority of you are familiar with the problems of gas-air compressor lubrication and this subject does not need any lengthy discussion. However, this is one phase that has been neglected to a considerable extent in the past by the compressor manufacturers, as well as the lubricating engineer.

Lubrication troubles have developed in the Seminole Field that have been hard to combat but the lubricating engineer is on the job now and I am sure that lubrication problems will be greatly reduced.

Dangers in Welding

There are several cases on record of explosions due directly to welding. Welding in gasoline, vacuum and lift plants


Polished Rod Travel in Inches
Curve "A" shows the variations in polished rod load throughout one pumping cycle at 4000' well
CARD "A"
Polished Rod Reference
Polished Rod Downstroke
Curve "B" shows the effective weight of grasshopper type Counterbalance
CARD "B"
Thousands of Pounds
FIG. 5

without the utmost care and precaution is most certainly to result in a terrible accident, with loss of lives and property.

As an example: One of the major coinpanies operating in the Burbank Field had an explosion in their vacuum station. An investigation disclosed that they were welding on the discharge piping of a vacuum pump between the cylinders and discharge gate, the bypass was left open, and the gas ignited back to the intake scrubber, causing an explosion which demolished the scrubber tank and four men were injured.

Someone should be held responsible to see that every safeguard is exercised before attempting the welding of any equipment. Blind gaskets should be inserted between the cylinder and discharge gate, all valves checked to see that they are closed, and the discharge line properly vented or removed. The foregoing is another case of where a rising stem gate valve might have prevented a disaster.

Gas Leaks

There is a case of an explosion in the Seminole Field, as pointed out in the paper, in a motor-driven lift plant. There existed excessive gas leaks in the compressor building, which was poorly ventilated, due to windows and door being closed. Presumably these leaks were in the stuffing boxes, gate valve stem and probably leaky valve covers on compressor. The cause of the ignition was thought to be from static electricity; however, previously to the explosion, it had been noted that sparking had occurred in the starting compensators on starting and stopping the motor, due to the heavy flow of current across the contactors which were found to be above the oil level. If the exact cause were known, it might disclose that the explosion would be traceable to the compensators not being properly cared for by allowing the oil to become so low uncovering contactors, placing compensators on the hazard list in this plant.

Oil-immersed compensators of the usual type are not explosion proof. For instance, the overload relay is constructed with contactors that are not oil immersed. There is approximately one-quarter to one-half ampere flowing through the relay, but it is sufficient to cause an explosion when the relay opens. There are a few cases on record that have been attributed to this cause, but in fairness to the electrical manufacturers, it should be mentioned that these conpensators may be equipped with oil-immersed, or hermetically sealed mercury contactors. For this reason, considerable thought should be given to the installation of electrical equipment in gas and gasoline plants.

This brings before the association that it is necessary to inaugurate a most rigid monthly plant inspection report on all electrical and mechanical equipment; and, last, but not least, fire-protection equipment. To this I might add that the gasoline department of my company has had this system in operation for several years, and yet it is not 100 per cent, but it is in a large measure responsible for the small losses, which we have sustained in our 13 years of operation.

Gas-Lift Station

On December 7, 1928, my company had the misfortune to have a lift station in the Seminole Field blow up. When the high pressure from the third-stage unit was by-passed into the intermediate state, it bulged the bottom of accumulator tank, breaking connection from tank and lines to compressors, releasing the field line system under high pressure in to the plant, doing considerable damage to the plant. Fortunately no one was injured. When this plant was built the fittings and equipment were safe for the pressure it was designed to operate under, but the addition of distant wells made it necessary to boost the pressure, so a third stage was added, doubling the working pressure. The third stage being a temporary installation, there was no thought given to the necessity of changing the original installation.

A swing check valve on the discharge line outside the by-pass in all probability would have prevented the explosion. In the installation of check valves in discharge lines, it is preferable to use swing checks and mount them upside down in a horizontal line with the clapper resting in a position approximately at an angle of 40 degrees. This is accomplished by an adjusting screw through the valve cover plate. The valve functions only when the pressure is by-passed, or a line broken between the check and compressor, lifting the valve to its seat.

At 2 a. m., September 23, 1928, one of the major companies, operating in the Seminole Field, had the misfortune to lose a loading rack of ten 25,000-gallon capacity tanks, 150,000 gallons of gasoline and four company cottages, with one derrick and an engine house for another company.

The cause given for this loss was due to pumping gasoline in storage tanks overrunning through relief valves and line, running down into boiler house of an adjoining lease, igniting and backfiring to stock tanks. I will not attempt to give a cure for this accident, other than it is another case of someone not being on the job watching these tanks when receiving gasoline.

Fire Apparatus

A very important feature overlooked in the paper is, the reduction of fire losses, the thought given to fire-fighting equipment, the proper kind, its location and upkeep. The equipment is useless in a building unless it is accessible from the outside, as well as the inside; and it is also important that close inspections at fixed intervals are made, and to know that the operators are trained in its operation. In the belief of preparedness with fire-fighting equipment, the gasoline department of my company is 100 per cent. We have each piece of equipment given a rigid inspection the first of each month, and each piece of apparatus has a linen tag attached with space for 12 monthly inspections over the year, carrying space for the date inspected and by whom. On the back of these tags there is space for any remarks, such as recharges or replacements of equipment with new.

In the two larger plants in the Seminole Field, Sinclair Oil & Gas Co. has motor-driven fire engines, carrying 500 feet of hose, 1,000 pounds of chemicals and Foam generator, four 2½-gallon Foam extinguishers, two 1-quart hand guns, saw, axe, crowbar and extension ladder. These pumpers are capable of delivering 150 gallons of water per minute at 120 pounds through a 1¼-inch play pipe. There plants have frequent practice drills in order that there be sufficient men on tour at all times capable of taking this equipment out.

NATURAL GASOLINE AND REPRESSURING

(Continued from Page 34)

and eliminate the large volumes of the product with flush production and a shortage with declining oil production.

Maximum Economic Recovery

The maximum ultimate economic recovery of petroleum products, including natural gasoline, will be recovered when

1. As much gas as produced is returned to the formation without extracting the gasoline content it carries until production obtained under this program is carried to its economic limit.

2. After production is no longer economical, gas can be circulated and the gasoline recovered until such time as no more can be economically taken from the formation.

3. When dry gas injected returns to the surface dry, there are no more recoverable products except gas, unless mining is resorted to.

4. Withdraw the gas and use it for fuel.

To do these things will mean there will be no gasoline plants built and operated in flush fields. Compression plants taking gas from high pressure traps will be used for returning wet gas to the formation. Drip gasoline recovered in this process should be injected into the key or input wells to assist in washing crude oil from the grains of the structure. Pressures as high as 1,500 to 2,000 pounds per square inch may be required, but there are no mechanical difficulties involved in high pressure work. Installations in California have already shown the advisability of using pressures up to 1,800 pounds per square inch.

Recovering Gasoline Vapors

After the injection period at high pressure has passed, the compressors can be fitted for circulating gas in the oil-bearing formation for the recovery of gasoline vapors. During this stage of operations, dry gas is necessary and absorbers should be used in conjunction with the compressors.

When this type of program is followed, gasoline plant operations will not interfere with production methods and vice versa, as is often the case where best results to each required without regard to the total ultimate recovery.

Returning gas to the structure in the time of flush production will not overcrowd the gasoline market and residue gas market, as has been the case in many instances. A conservative use of gas would prevent great quantities from being wastefully consumed in the manufacture of carbon black, as now practiced and would require the development of more efficient means for the manufacture of this commodity. The return of gas to the formation would make enormous quantities of gas now wasted available for efficient use in ultimate recovery. It would spread the period of gasoline recovery over a wider range and call for less investment in gasoline equipment and less idle gasoline plant equipment as always appears after the flush is off a field.

Excess Gas in Flush Production

It is realized that there will probably be more gas available in flush production than can always be returned. Where this condition exists the use of gasoline plants for stripping the gas before selling residue is a conservative operation. For greatest ultimate recovery, however, this method will not be used as much as it has in the past.

One of the main reasons why repressuring of flush fields has not come into general use, is the natural gasoline situation as it exists today, it being customary to use all available gas for gasoline extraction.

When gas is consumed for gasoline recovery and then burned to carbon black or sold as residue, there soon comes a shortage and both the oil producer and the gasoline producer are forced to quit operations prematurely and uneconomically, leaving unrecoverable many thousands of dollars worth of oil and gasoline that could otherwise be recovered.

The value of maintaining pressure on flush operations is shown by a few installations where all available gas is returned to the sand wet. In some instances consideration is being given to the advisability of burning crude for fuel to have more gas for returning to the formation. The use of wet gas has a decided value over dry residue in its scrubbing action on releasing oil from sand grains. One can readily see the advantage of using wet gas when it is shown that the oil in the surface of the sand is much greater than that in the pore space.

Longer Life and Bigger Returns

Where gasoline plants are in operation and the residue is returned to the formation, longer life to both production operations and gasoline plant operations is assured and a much greater return to both will be obtained than where residue is blown to waste, sold as fuel or burned to carbon black.

There are a great many producing operations today where gasoline plants are operating in conjunction that would be greatly benefited if the gasoline plant were operated as a link in the repressuring or pressure maintained cycle. There are too many gasoline plants operated for gasoline alone, without any regard whatsoever for the ultimate production of oil from the wells to which they are connected. Any system of operation which will increase the ultimate recovery of oil will also increase the ultimate recovery of gasoline and if generally practiced would produce gasoline with a stable market resulting in better values.

The total cost of pressure maintenance can be lowered when worked in conjunction with gasoline plants, as well as lowering the cost of gasoline production.

Where gasoline is being extracted in the pressure maintenance or repressuring cycle, the lighter fractions of the gasoline, ordinarily weathered, can be returned and are very beneficial for washing oil from the sand when injected into pressure wells.

Unnecessary to Pull Vacuum

Operating gasoline plants in connection with repressuring operations is beneficial in that it is not necessary to pull vacuum on wells to recover the gas. Vacuum sufficiently applied is detrimental to wells and machinery for maintaining vacuum is more expensive than that for maintaining pressure for a given volume. Generally enough pressure will be maintained to force the gas to the plant without injury to the repressuring operation.

The gravity of oil produced under a pressure maintenance without the extraction of gasoline is generally increased from 1 to 3 degrees, thereby giving an added value to the oil. The return of the gas in some cases is actually worth more in increased gravity than if used for gasoline extraction.

A United States Bureau of Mines Bulletin, "Function of Natural Gas in Production of Oil," says:

"Dry gas is injected into depleted oil sands in the Coalinga and Buena Vista Hills oil fields in California to recover gasoline from unrecoverable oil which adheres to the said grains. As operations in both fields are practically identical, only the Coalinga project will be described.

"At Coalinga, dry gas is injected into the oil sand on one property through a single well at an average pressure of 40 pounds per square inch, and it returns to the surface through surrounding pumping wells. Approximately 1 gallon of gasoline per 1,000 feet of gas circulated through the oil formation is recoverable when the wet gas is treated in a near-by gasoline plant.

Fluid Levels Below Top of Sand

"The fluid levels in the wells on this property stand far below the top of the productive sand stratum, so that there is opportunity for the injected gas to travel through the upper depleted part of the sand zone. Oil production comes from the lower and less depleted part of the zone and is unaffected by the gas that by-passes through the more depleted sand above the oil level. Oil production, therefore, has not been increased by the circulation of dry gas. However, if enough gas were available to fill the voids in the sand completely, and if pressure were built up over the whole structure, it is probable that the oil production would be increased.

"Circulating dry gas through depleted oil sands is usually profitable. Seldom will the cost of compressing and injecting gas into such formations exceed a few cents per 1,000 cubic feet. On the other hand, the value of the gasoline recovered is several times the cost of manufacturing it, so that the resulting profit makes such operation lucrative; at the same time, the oil operator increases his supply of gasoline without affecting his reserves, because gasoline absorbed from unrecoverable oil otherwise would be lost."

Method Little Practiced

The method of operation described above is little practiced, but could be used in many partly depleted fields for an economic gain by the natural gasoline industry. If residue gas, now generally sold, were recirculated for increasing gasoline recovery many of the gasoline plants would occupy more permanent positions, with protected investments and there would be less dependency upon the production status of oil operations. In no case would oil operations be injured and in many the ultimate yields would be increased.

Where the gasoline content recovered by 1,000 feet of dry gas circulated is equal to the market value of gas for residue, it does not take much calculation to see where the gas should be used. Once sold for fuel, it is gone, never to be replaced. When used in a recycling

program it can be used many times over, each time producing its original value in gasoline recovered and at the end of such a program it would have its original or higher value for fuel on account of a stabilized gas market, if such practices were generally resorted to.

The conservation of natural gas in the production of oil is of paramount importance. It is conservatively estimated that in a single year gas conservation would result in the production of many millions of barrels of oil, in addition to that nominally recovered.

Millions of Dollars Lost

If the gas ordinarily produced and consumed or wasted had been used for pressure control, pressure maintenance and repressuring, many millions of dollars worth of oil would have been realized that now remains unproduced and largely irrecoverable because of uncontrolled production methods. In addition a great many of the wells would have flowed naturally for a longer period under pressure control. Increased production with a lowered lifting cost, would result, leaving a greater profit per barrel produced.

Although the gas produced with the oil in excess of the estimated amount required to produce oil efficiently has a value of several million dollars at the casinghead, it would have had a far greater value if used for expulsive energy in moving oil through the sand to the wells. From this it can be readily seen that if repressuring activities had been in use extensively in the past, the gasoline industry would have derived a great amount of benefit and many plants shut down after flush production was over would yet be operating economically.

Summarizing

1. The natural gasoline industry will be greatly benefited by repressuring and pressure maintenance.
2. Gasoline plant operations fit in with repressuring operations and can help the ultimate recovery of each.
3. Gasoline plant operations maintained without regard to oil production, may be detrimental to both the gasoline plant and oil production.
4. Co-operative operation of gasoline plants and repressuring programs has worked successfully.
5. Repressuring in connection with gasoline production will tend to stabilize the gasoline market.
6. Repressuring in connection with gasoline production will minimize initial equipment cost in gasoline plants and keep operating charges low.
7. Unified operation over large areas is conducive to best results but good results can be obtained on a smaller scale.
8. Repressuring and pressure maintenance is a move towards conservation in the production of oil and anything which assists in helping in oil production is a corresponding help in gasoline operations.
9. Close co-operation between gasoline plant operation and production operation will be highly beneficial to each and pay good returns.
10. After both gasoline and production practices have been carried to economic depletion, the natural gas industry will derive full benefit from residue gas left and investments in transmission lines will be protected.

GEOLOGY OF FRANNIE STRUCTURE ANALYZED

(Continued from Page 31)

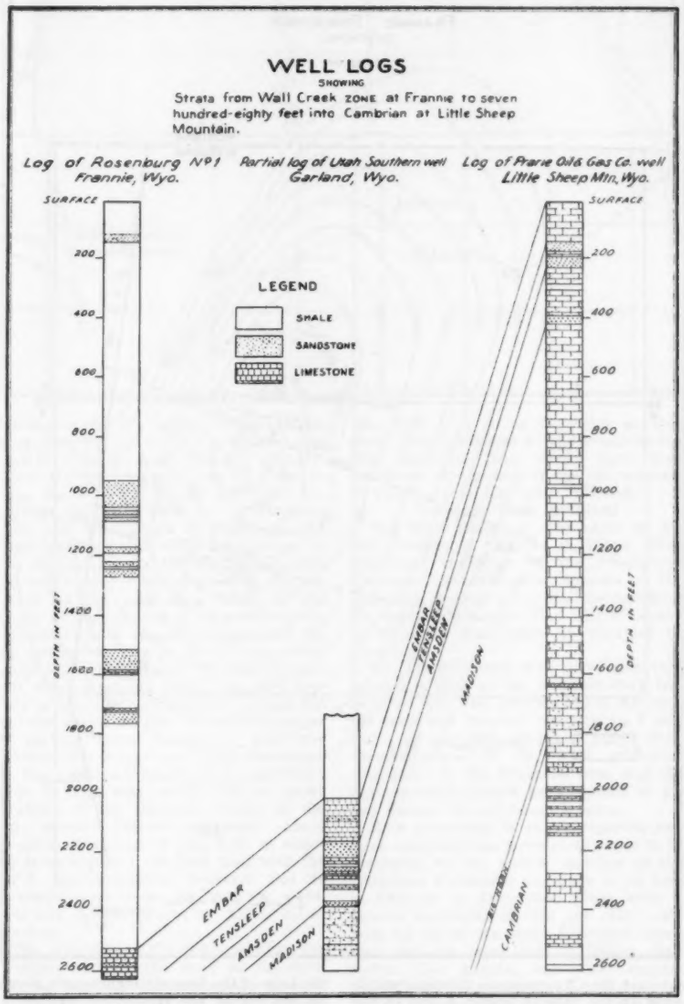
sleep and Amsden sands on the diagonally opposite offset location to the southwest from the Decker-Collins well mentioned above.

In June, 1926, V. M. Kirk was granted a prospecting permit from the United States General Land Office on acreage covering much of the top of the Frannie structure. The location for the deep test was made on the axis of the structure just north of and on the upthrow side of the north main fault, near the middle of the west side of the NE NW Section 25-58-98. The Summit Oil Co. of Great Falls, Mont., drilled this well during the fall and early winter of 1926 to a depth of 1,118 feet.

No additional drilling was done until the fall of 1927, when E. H. Rosenburg and associates of Los Angeles, Calif., acquired the well and adjacent acreage on the structure and carried the drilling down to the present depth of 2,612 feet. Oil was encountered in sandy lime believed to be the Embar formation at 2,585 feet below which was an oil saturated sandstone from which the oil flowed into the tanks at the rate of 100 to 125 bbls. daily until the well was put on the pump.

In November, 1928, the Midwest Refining Co. acquired the Rosenburg and associates property on the Frannie structure and that company is now drilling two other wells.

The oil already found in the Frannie structure gives off a sulphurous odor. Oregon Basin oil, according to an analysis at hand, has a gravity of 26.6 degrees Baume and a gasoline content of 21 per cent. With these figures in mind it is apparent that the Frannie oil is of slightly higher grade than Oregon Basin oil. Prior to the bringing in of the Frannie well the Oregon Basin oil was the best oil of asphalt base produced in the Rocky Mountain region.



GEOLOGY

Stratigraphy

The lowest bed exposed on the Frannie structure consists of shale which occurs just below the first Wall Creek sandstone 100 feet below the top of the Frontier formation. As shown on the accompanying map, the upper sandstone of the Frontier formation outcrops in three different areas along the crest of this structure. This condition is due to the presence of two pronounced faults which have permitted the block between them to drop 100 to 200 feet. Had there been no faulting, the outcrop of the top sandstone of the Frontier formation would have been continuous on the crest of the structure.

In the description of formations which follows, the writer has included beds as low as the Deadwood sandstone of Cambrian age, for the reason that this sandstone is considered by some to have oil and gas possibilities. Drilling to date to this sandstone has not furnished much encouragement to oil operators, since the two tests to that sand have failed to find oil or gas in commercial amounts. One of these tests to the Deadwood sand was drilled near Alcova in central Wyoming and the other on the Little Sheep Mountain structure, 20 to 22 miles southeast of the Frannie structure, and a few miles southeast of Lovell. This latter test was drilled by the Prairie Oil & Gas Co. The Deadwood sandstone is reported to have been encountered in this well at approximately 2,500 feet and to have carried water instead of oil and gas.

At various places around the Bighorn Mountains where the Deadwood sandstone is exposed, it is reported to show an oil saturation, yet when it is tested in a structure like Little Sheep Mountain structure which has ample closure to trap and hold oil and gas, and is found to be water-bearing, it is strongly suggested to one's mind that source material for forming oil and gas is lacking in the adjacent beds. The fact that the Little Sheep Mountain structure is barren of oil and gas in the Deadwood sandstone, of course, does not mean that that possible reservoir rock will be barren of these substances everywhere.

CAMBRIAN SYSTEM

Deadwood Formation

The Deadwood formation was named by Mr. Darton of the United States Geological Survey from the Black Hills region where it is excellently exposed near Deadwood, S. Dak. Fisher in describing this formation around the edges of the Bighorn Basin, Wyoming, in United States Geological Survey Professional Paper No. 53, 1906, pp. 10 and 11, states:

"The oldest sedimentary formation outcropping within the area is a series of beds of sandstone, shale, limestone and conglomerate of middle Cambrian age that have a thickness ranging from 700 to 1,500 feet. . . . The basal member is a sandstone, somewhat conglomeratic, lying on the granite. Its thickness varies from 10 to 30 feet. Next above this is a series of greenish-gray shales with layers of sandstone and sandy shales, having in all a thickness of about 300 feet. This member is succeeded by a sandstone 25 to 40 feet thick, which in turn is overlain by several hundred feet of shale containing thin-bedded conglomeratic sandstones and limestones. Overlying these beds are alternating layers of limestone and limestone conglomerate made up of flat limestone pebbles. The pebbles are mostly green in color, but on freshly broken surfaces are gray to pale pink. The limestones and conglomerates have a thickness of about 200 feet and are sometimes capped by a layer of white sandstone, which is regarded as the base of the Bighorn formation. . . . The Deadwood beds are also extensively exhibited in the valleys of Cedar and Shell Creeks. While the total thickness of the formation is generally as much as 900 feet, it appears to be somewhat less than this about Medicine Mountain; but, on the other hand, it thickens locally to nearly 1,500 feet in the lower portion of Shell Creek Canyon." Judging from the depth at which the sandstone near the middle of the Deadwood formation was found in the well drilled by the Prairie Oil & Gas Co. on Little Sheep Mountain, the geologists of that company feel warranted in estimating the thickness of the Deadwood formation at that locality at approximately 1,300 feet.

ORDOVICIAN SYSTEM

Bighorn Limestone

The Bighorn limestone rests on the Deadwood formation above described. The writer has noted this formation but not examined it in detail, hence, Fisher's description will be used. (See United States Geological Survey Professional Paper No. 53, 1906, pp. 12 and 13.) He states the following regarding this formation in that part of the Bighorn Mountains nearest the Frannie structure: "In the northern portion of the Bighorn Mountains the Bighorn limestone is the most conspicuous sedimentary formation. Here also it is a hard, massive limestone which outcrops in thick ledges lying on long slopes of Deadwood rocks. Its thickness averages 300 feet, including an upper portion of 100 feet of soft, thin-bedded limestones, which is regarded as a part of the formation mainly because of its Ordovician age. . . . At the top the formation is not easily separated from the Carboniferous limestone. While the total thickness of the Bighorn formation averages 300 feet, it appears to be more than this in the lower part of Shell Creek Canyon, where two beds of massive, siliceous limestone occur in the upper portion, separated by slabby limestones. This upper portion is here separated from the basal by white, fine-grained limestone."

In the Little Sheep Mountain well only 40 feet of Bighorn limestone is recognized.

CARBONIFEROUS SYSTEM

Madison Limestone

The Madison limestone apparently rests conformably on the Bighorn. There is, however a stratigraphic break, for the Silurian and Devonian do not seem to be represented. The Madison in the northern Bighorn Mountains seems to have an average thickness of around 1,000 feet. It consists of two members, the lower a massive bedded limestone, partly of dark gray color about 800 feet thick, and an upper member, softer and more massive, about 200 feet thick. It was near the top of the Embar or 420 feet above the top of the Madison that the Prairie Oil & Gas Co.'s well started on Little Sheep Mountain. In this well nearly 1,400 feet of Madison is recognized.

In Sheep Mountain Canyon, where the greater part of the Madison limestone is well exposed, an odor of petroleum is noticeable from freshly broken pieces of the lower half of the Madison limestone. This condition extending through a con-

siderable thickness of the Madison leads the writer to the conclusion that possibly some of the oil found in the overlying Amsden, Tensleep, and Embar may have been derived from the Madison. This seems particularly likely when the structures where oil is found in these formations are broken by faults as in Frannie and Oregon Basin.

Amsden Formation

The Amsden formation rests conformably on the Madison limestone and is from 125 to 150 feet thick. It consists of alternating beds of gray and red sandstone, gray limestone, red shale and sandy shale and layers of chert. The sandstone beds in this formation are likely to serve as good reservoirs for oil or gas where the structural conditions are favorable. The details of this formation are shown rather fully on the platted logs of the Utah-Southern Oil Co. well on the Garland structure, of the Rosenburg well on the Frannie structure, and of the Prairie Oil & Gas Co.'s well on Little Sheep Mountain.

The logs of wells on the Garland and Little Sheep Mountain structure show the Amsden to range from 121-185 feet in thickness.

Tensleep Sandstone

The Tensleep sandstone in Bighorn Basin varies from 30 to 230 feet in thickness. In the northern Bighorn Mountain region it is about 30 feet thick, but increases in thickness rapidly to the south. The log of the well on the Garland structure shows 103 feet in thickness and also the one on Little Sheep Mountain shows the thickness of the Tensleep as 95 feet, each consisting of two beds of sandstone with a break between them. The Tensleep consists of buff and white sandstone in massive thick beds, which are cross-bedded in many places weathered into irregular topographic forms. The Tensleep carries oil in commercial amounts in Oregon Basin and Lander oil fields and may prove to be an excellent reservoir rock in the Frannie structure. With the large gathering area and excellent closure of that structure the Tensleep should carry oil.

Embar Formation

Resting conformably on the Tensleep sandstone is the Embar formation, in a sandstone of which the oil encountered in the Rosenburg well on the Frannie structure is believed to be derived. The Embar formation in Bighorn Basin has a thickness of between 140 and 250 feet. It is made up mainly of limestone with minor amounts of sandstone and shale interbedded.

In the Rosenburg well the top of the Embar limestone was encountered at a depth of 2,525 feet. The formation from 2,525 to 2,565 feet consisted of hard gray limestone; from 2,565 to 2,585 feet the formation is sandy limestone with oil showings; from 2,585 to 2,590 feet is sandstone, thoroughly saturated with oil; and from 2,590 to 2,612 feet is sandy limestone. The bottom of the well is 2,612 feet, or 87 feet below the base of the Red beds or top of the Embar formation.

Some who have studied the cutting from the Rosenburg well are inclined to think that the oil in that well is coming from the top of the Tensleep sandstone. The writer is not ready at this time to agree that this 5-foot sand accurring 40 feet below the base of the Red beds with limestone beds above and below is Tensleep. It seems more reasonable to believe that the 5-foot sand carrying the oil in the Rosenburg well on the Frannie structure is the equivalent of the sandy bed of similar thickness encountered in both the Ohio and Utah Southern wells on the Garland structure 13 miles to the south.

In both of the wells last mentioned a sandy horizon yielding gas was encountered at 45 to 50 feet below the base of the Red beds or top of the Embar formation. Below this sandy zone is limestone as is the sequence in the Rosenburg well on the Frannie structure. Particular attention is invited to the fact that the Tensleep is for the most part sandstone. It is true that in places it contains thin layers of limestone interbedded with the cross-bedded sandstone, but nowhere to the writer's knowledge does it contain massive limestone as occurs in the Frannie well. Therefore, more conclusive evidence will have to be produced before the writer will be convinced that the oil in the Frannie well is coming from the Tensleep.

TRIASSIC SYSTEM

Chugwater Formation

The Chugwater formation, or "Red Beds" of the Rocky Mountain region, consists of 600 to 1,800 feet of interbedded red sandstone, shale, sandy shale, gypsum, and minor amounts of limestone. In the Rosenburg well, the Chugwater formation is 635 feet thick, but in the Ohio Oil Co. well on the Garland structure, 13 miles south of Frannie, the Chugwater has a thickness of 680 feet. In comparing the above thickness of the Chugwater in the two wells, it is apparent that the Chugwater is thinning northward at the rate of nearly 4 feet to the mile. In the Lander district, sandstone beds in the Chugwater are known to carry oil in commercial amounts, where it is believed the oil has migrated upward through faults from the Embar, Tensleep, and Amsden formations, the upper two sandstones of which are known to be saturated with oil. No oil was noted in the Chugwater formation during the drilling of the Rosenburg well. It is rumored that oil showings have been encountered in the Red Beds in the Prairie Oil & Gas Co.'s well on the Sage Creek structure, about 3 miles southeast of the discovery well on the Frannie structure.

JURASSIC SYSTEM

Sundance Formation

The Sundance formation in Bighorn Basin consists of about 350 feet of sandstone, shale, sandy shale, and in places a little limestone, much of which has a prevailing greenish gray color. In some localities, the formation contains some reddish colored beds. In the Frannie well, it is believed that the top of the Sundance is at approximately 1,510 feet and extends to 1,891 feet giving a total thickness of 381 feet. The sands in the Sundance formation can serve as excellent reservoirs for oil and gas where the other conditions for the making of oil fields are well developed. No oil shows in the Sundance in the Frannie discovery well were noted.

CRETACEOUS SYSTEM

Morrison Formation

The Morrison formation consists of varicolored soft sandy shales and clays alternating with layers of massive sandstone, and in places some limestone usually very thin in Bighorn Basin. In parts of Bighorn Basin, greenish tints predominate. In the Rosenburg well on the Frannie structure, the Morrison formation is believed to be 230 feet thick. The writer would place the top of the formation at the base of the lowest conglomerate shown on the log of the Rosenburg well or at 1,230 feet. The Morrison extends to the top of the Sundance formation at 1,510 feet in this well.

In drilling this formation, oftentimes much difficulty is encountered due to its caving character.

In some favorable structures, oil has been found in lenses and beds of sandstone in the Morrison formation. No showings were encountered in the discovery well on the Frannie structure.

Cloverly Formation

The Cloverly formation is the equivalent of the Dakota group as it is known in Colorado and some parts of Wyoming. In thickness, the Cloverly ranges from 100 to 300 feet in Bighorn Basin. From the writer's interpretation of the Frannie discovery well log, he would give the thickness of the Cloverly at 255 feet, or from 975 to 1,230 feet. As shown by the platted log, there are five sandstones in the Cloverly, the top one being 55 feet thick and the other four about 10 feet thick each. The top part of the upper sand showed a little gas in the Rosenburg well. It was to the upper part of this formation that Homer Lamb drilled his first well on the Frannie structure a number of years ago and after finding neither oil nor gas in commercial amounts abandoned the structure.

Colorado Formation

The Colorado group of beds includes those rocks from the top of the Cloverly formation described above, to the surface in the heart of the Frannie structure. This group of beds is divisible into Thermopolis shale, at the base, overlain by Mowry shale, and this in turn is overlain by the Frontier formation which is exposed at the surface in the heart of the Frannie structure. In the Rosenburg well, 975 feet of strata all belonging to the Colorado group of beds was penetrated by the drill before the top of the Cloverly formation was encountered. Nearly all of this thickness was made up of shale. Only one sandstone 25 feet thick was encountered and it occurred from 115 to 140 feet beneath the surface. No beds showing oil or gas were encountered in the Colorado group of beds in the Rosenburg well.

Untested Buried Sandstone Reservoirs

Only the upper 87 feet of the Embar formation was penetrated by the drill in the Rosenburg well. It contained one bed of sandstone about 5 feet thick from 2,585 to 2,590 feet in depth and then the drill again penetrated limestone and continued in limestone to 2,612 feet, the bottom of the hole. So far the log of the Rosenburg well as far as it concerns the Embar formation corresponds closely to the logs of the Ohio Oil Co. and Utah-Southern on the Garland structure, 13 miles to the south.

There is no good reason to believe that the untested beds under the Frannie structure will be much different from those under the Garland structure. The fact that the upper parts of the Embar are similar is suggestive at least that the untested beds under the Frannie structure will be somewhat similar to those encountered by the drill in the Garland structure. If this proves to be true, then according to the log of the Utah-Southern well on Garland, there may be expected in deeper drilling on the Frannie structure in the Rosenburg discovery well about 50 feet more limestone and then a sandstone about 55 feet thick, which in the writer's opinion is the upper part of the Tensleep sandstone.

Beneath this is approximately 20 feet of limestone followed by shale, believed to be a break in the Tensleep, and this in turn is succeeded by 25 feet of sandstone, believed to be the basal part of the Tensleep sandstone. This log gives a total of 80 feet of sandstone in the Tensleep in two beds, according to the interpretation given above.

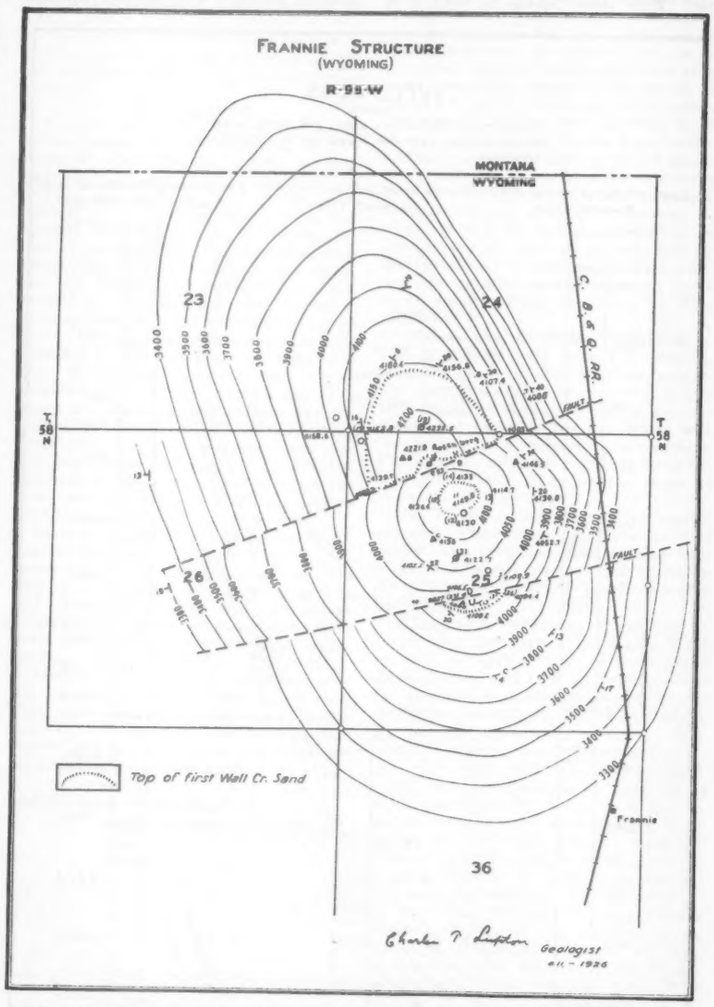
Beneath the Tensleep sandstone is the Amsden formation consisting of sandstone, limestone, and shale interbedded about 120 feet thick. There are three sandstones in this formation capable of serving as reservoirs for oil or gas. The upper one is 7 or 8 feet thick, a middle one about 5 feet thick, and a basal one resting on the Madison limestone about 20 feet thick. Therefore, in the Amsden formation, there is approximately 32 feet of sand.

If the section at Frannie is similar to the log of the Utah-Southern well on the Garland structure, there is at least 110 feet of sandstone untested that can serve as a good reservoir for oil or gas above the top of the Madison limestone.

The log of the Prairie Oil & Gas Co.'s well on Little Sheep Mountain is quite similar to the log of the Utah-Southern well on the Garland structure except that the Amsden is thicker.

Structure

The accompanying structure contour map, a part of which was based on plane-table work and a part on reconnaissance work shows the character of the Frannie structure. The least or critical closure of the Frannie structure is to the south and southeast and amounts to approximately 1,000 feet. Those who have mapped the Frannie structure and also the Sage Creek structure to the southeast, report a total closure around both of them of approximately 1,800 feet. Therefore, the 1,000-foot closure of the Frannie structure is the depth of the syncline separat-



ing Frannie from Sage Creek structure. As oil has already been found on the Frannie structure, it is evident that the closure is sufficient to trap and hold oil in commercial amounts.

Two prominent faults cross the Frannie structure nearly at right angles or normal to the direction of the axis. They are both normal faults, and have displacements of 100 to 200 feet. The block between these two major faults has dropped the amount of the displacement of the faults. Other minor faults may be present, but if so they are not particularly noticeable. As these two main faults cross the axis nearly at right angles, it is doubtful if they will have any detrimental effect on the accumulation of oil, in the untested sands.

It should be added in conclusion, that drilling done to date into beds lower than the top of the Madison limestone do not give any encouragement that oil will be found in these lower beds in commercial amounts in the Rocky Mountain region.

ENGINEERS DISCUSS IMPORTANT TOPICS

(Continued from Page 30)

be stocked. And this must not be construed as meaning that the article is not suited for use in that particular field, for, as previously stated, all standards were arrived at only after thorough and complete discussion with all concerned and each and every field was represented in the committee meetings, so the results should represent good workable averages of all field requirements.

The Division of Development and Production Engineering is to be the open forum where these standardization problems are to be discussed after the field tests have developed their worth, and if complete and carefully prepared constructive criticism and data are prepared to be presented at these regional meetings Mr. Young assured the assembly that they would have the very careful consideration of the A.P.I. National Committee on Standardization handling that particular detail.

Future Field Meetings

Following Mr. Young, Chairman McWilliams read a paper covering the purpose and advantage of the field meetings that are being held in the five districts of Oklahoma and Kansas. These districts and their officers are:

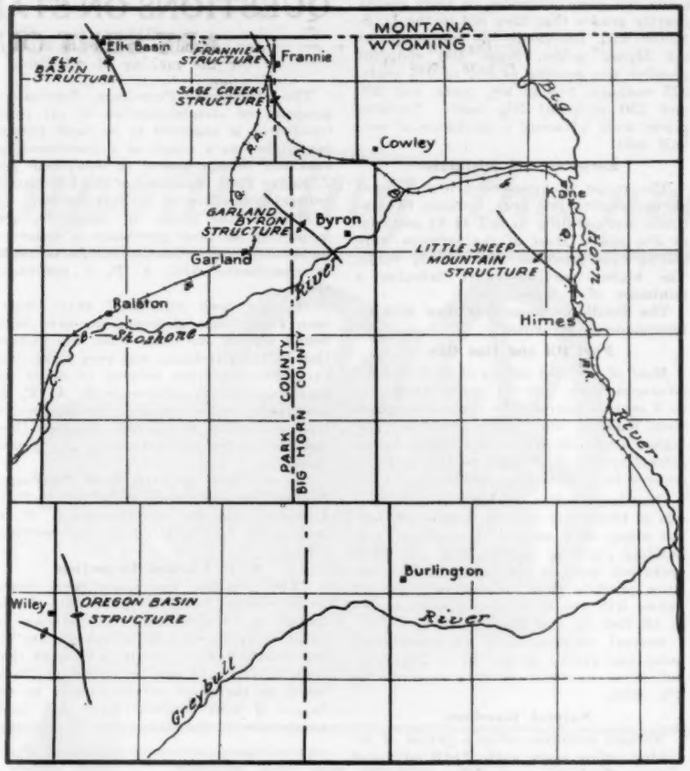
Burbank Field meeting: L. B. Holland (Phillips), advisor; chairman, Fred Beiser (Sinclair); vice chairman, George Longfellow (Clint Moore estate); secretary, Fred Cook (Mid-Kansas); place of meeting, Sinclair Community house; time of meeting, second Wednesday each month; next meeting, June 12; topic, "Pumping Equipment."

El Dorado (Kansas) Field meeting: L. A. Ogden (Empire), advisor; chairman, Max Mahaffey (Empire); vice chairman, Herman Trapp (drilling contractor); secretary, H. E. Wamsley, (Skelly); place of meeting, Empire Welfare Hall, Oil Hill; time of meeting, first Tuesday each month; next meeting, June 4; topic, "Shooting Wells."

Seminole Field meeting: Morgan Walker (Amerada), advisor; chairman, Herb Shaffer (Pure); vice chairman, T. H. Rakestraw (Gypsy); secretary, H. B. Thomson (Indian Territory Illuminating Oil Co.); place of meeting, basement, Methodist Church, Seminole; time of meeting, second Tuesday each month; next meeting, June 11; topic, "Repressuring at Seminole."

Tonkawa Field meeting: E. H. Griswold (Marland), advisor; chairman, C. M. Copeland (Comar); vice chairman, O. L. Stevenson (Gypsy); secretary, R. M. Dannenburg (Comar); place of meeting, Tonkawa Hotel, Tonkawa; time of meeting, third Wednesday each month; next meeting, June 19; topic "Deep Well Pumping Equipment."

Drumright Field meeting: D. L. Trax (Gypsy), advisor; chairman, Watson Bettis (Gypsy); vice chairman, C. E. Carl (Shaffer); secretary, E. L. Bell (Shaffer); place of meeting, basement, Masonic Hall, Drumright; time of meeting, third Tuesday each month; next meeting, June 18; topic, "What Is the Most Economical Pump to Handle the Present Production (Drumright Area)."



Mr. McWilliams said that in order to bring the acivities of the American Petroleum Institute Division of Development and Production Engineering into closer contact with field operations, it was decided by the officers of the Mid-Continent district of the division and endorsed by the production heads of the major oil companies in the district to hold meetings in various fields where the key production men in those areas could conveniently participate. It was thought that these meetings would not only promote a spirit of co-operation among the representatives of the various companies by making them acquainted with one another, but a free and open discussion of the problems confronting the operators in that area would lead to better solutions of the problems which in the end should reduce operating costs. Another advantage of this type of meeting is to acquaint the field men with the A.P.I. standardization program and to ascertain from those who use the materials any defects caused by A.P.I. specifications.

The activities of the field meetings are co-ordinated with the work of the division by making the chairman of each field district a member of the Mid-Continent Production Practice Committee, and the vice chairman of each field district a member of the Mid-Continent Drilling Practice Committee. It is the duty of the secretary of each field district to report the discussions, etc., of each field meeting to the Mid-Continent chairman of the Production Practice-Committee or Drilling Practice Committee as the case may be. A member of the Production Practice Committee, familiar with the activities of the division, will act as an advisor for each field district.

Important to Companies

He pointed out the practical value of these district field meetings to the producing companies by citing an incident whereby he gained specific knowledge at a Tonkawa meeting regarding a method of recovering casing from wells that permitted his company to reclaim much more pipe than usually recovered following the old method of establishing ripping point by vibration on the string.

O. L. Stevenson, Tonkawa district superintendent for the Gypsy Oil Co., outlined a method of establishing circulation back of a string of casing so that more than 2,000 feet of additional casing was recovered than would have been taken out of the hole if the old methods of ripping pipe had been followed.

Valuable Data Obtained

Mr. McWilliams at the close of his talk introduced Charles P. Dimit, Mid-Continent chairman of the Production Practice Committee who presides at the afternoon session when the discussion of the questionnaire on "Gas Lift Practice" at Seminole was taken up question by question.

Mr. Dimit stated that they were very much gratified at the response they had received from the questionnaires sent out, for they had received answers to a majority of the 100 questions asked from representatives of 18 major producing companies in the Seminole area and the compiled data would be discussed in detail during the afternoon session.

This discussion is to be reported and later compiled into a complete paper to be presented at the annual meeting of the American Petroleum Institute to be held in Chicago in December, along with a similar treatment of this and other subjects by all of the other divisional meetings that are being held in Dallas, Galveston, Los Angeles and other centers throughout the country.

This practice should bring out the very latest methods used in producing and handling oils and gas in all fields and under all conditions and be invaluable to the industry as a whole and result in real economies.

Working Model Gas Lift

At the close of Mr. Dimit's address, C. V. Milliken, petroleum engineer with the Amerada Petroleum Corp., brought into view on the stage a model of a gas-lift system that was complete in every detail and demonstrated to the audience all of the different phases of this rather complex operation.

The model is about 4½ feet high and looks something like a very modern refrigerator as it has mounted on the top a glass separator and small electric motor-driven compressor. On the front of the cabinet there is mounted a long glass tube terminating in a connection at the bottom which permits oil to be conducted to this tube, which represents the well casing, from a storage tank placed inside the cabinet.

By this arrangement Mr. Milliken was able to demonstrate the various operations of lifting oil by the use of natural gas pressure from the sands, and as the pressure is diminished the gas-lift principle was introduced by the opening of a valve connected with the pressure system and the actual appearing of a string of casing during the flowing of oil and gas from the well was clearly seen by the audience. Then the demonstration continued showing what would happen if the well could not be produced through the casing and a string of glass "tubing" was run into the casing and the well immediately picked up its production again and continued until it was necessary to use the gas lift, and connections were then made between the small compressor and the well casing and the compressed gas forced into the well which produced through the tubing.

It was all a very vivid and interesting demonstration of something that has been talked about for a number of months, and showed as much in 30 minutes as could have been said in a whole afternoon of open discussion. The industry is indebted to men like Mr. Milliken for such practical demonstrations of principles applied to production and other petroleum industry problems.

About 60 of the delegates were luncheon guests of the Reading Iron Co. Monday noon at the Tulsa Club roof garden. Salty Clark, representing the company, took care of the guests.

The morning session adjourned at 12 o'clock and the balance of the program is given below and will be fully reported in the next issue of The Oil and Gas Journal, along with a review of the two papers presented and discussed at the Tuesday and Wednesday sessions.

"Gas-Lift Practice at Seminole," a group paper will be read by C. P. Dimit (Gypsy), Mid-Continent chairman of the Production Practice Committee.

Afternoon session, 2 p.m., Tuesday, May 28: Discussion, "Gas-Lift Practice at Seminole."

Tuesday evening, 8 p.m.: Lewis-Stecher wrestling match at the Coliseum.

Wednesday, May 29 (Second Day)

Morning session, 9:30 a.m.: Meeting called to order by W. K. Whiteford (Barnsdall), vice chairman.

"Straight-Hole Practice," a group paper, will be read by Charles Jacobsen (Barnsdall), Mid-Continent chairman of the Drilling Practice Committee.

Discussion, "Straight-Hole Practice."

Adjournment for lunch.

Wednesday afternoon, 1 to 3 p.m.: Trip through the factory of the Spartan Airplane Co. and a visit to the Municipal Airport, where complimentary tickets for an airplane tour over Tulsa will be issued upon presentation of the registration card of the meeting.

1 to 5 p.m.: Golf at the Oakhurst Country Club for those desiring to play. It is to be blind bogie with adequate prizes for the lucky ones.

ALL GASOLINE GRADES CONTINUE TO ADVANCE

(Continued from Page 28)

Coastal export prices as quoted by the Petroleum Export Association, Inc., had not materialized up to Tuesday.

Thus the going market for 375 end-point export gasoline is 8 cents North Texas and 7¾ cents for 390 endpoint The Oklahoma price, due to a freight differential, is one-eighth cent under the North Texas price. These prices compare with the 9-cent domestic price for U. S. Motor gasoline previously explained. There is, of course, no spot business for export movement at present prices. However, at least one of the large export companies has contracts extending from three to six months with North Texas refiners giving the sellers 2 cents under the Gulf export price as posted by the Petroleum Export Association, Inc. These contracts are not netting the refiners 8 cents for 375 endpoint and 7¾ cents for 390 endpoint.

There is a feeling in the Mid-Continent trade that these export prices will continue relatively low. This attitude is based on the fact that foreign refiners as well as California, Gulf Coast and

East Coast refiners are competing for this business. It is said that conditions in the large foreign markets are not favorable for advances in prices to consumers and this will hold back increases in export prices here.

From the Mid-Continent angle this situation, as long as it continues, means that the refiners will have to rely on the domestic market to absorb all of their gasoline output. This works a special hardship on the North Texas refiners who last year at this time were enjoying a large export movement together with a strong local domestic demand coming from two or three of the large companies in Texas.

West Texas Situation

One development which is considered favorable for Oklahoma and other Mid-Continent refiners was the advance in West Texas crude oils early last week. This advance, averaging around 25 cents a barrel, wipes out the advantage in manufacturing costs which the West Texas refiners have had due to the low crude costs. These refiners have practically dominated the Middle West fuel oil and gas oil market and have also at times maintained the same situation in the gasoline market.

With an average yield of 18 to 26 per cent gasoline in a skimming operation the average West Texas refiner has less than 10 gallons of gasoline from a barrel of crude oil with which to offset the higher crude oil schedules. Several of the refiners are installing cracking units but in most cases they will not be able to benefit from this operation until late summer.

This situation is interpreted to mean that West Texas refiners operating skimming plants will have to obtain the maximum of the going market instead of the minimum, both for gasoline and the heavier oils. With the average skimming plant obtaining 65 to 75 per cent of the heavier oils the owners apparently will have to shift a part of the burden on these oils and this may mean generally higher fuel oil and gas oil prices throughout the Mid-Continent.

Gasolines and Naphthas

Refiners reporting their Monday sales showed a price range of 8½ to 9¼ cents for U. S. Motor gasoline. The bulk of the sales were at 9 and 9¼ cents. The U. S. Motor gasoline was available from resellers who were long on May purchases at 8½ to 8¾ cents. There were a number of inquiries for June shipment but little business had been placed the first of the week, the sellers preferring not to speculate as long as the crude price and gasoline tank wagon developments were in doubt.

It is difficult to determine the market on the higher gravity gasolines. With no export movement the market lacks that important price factor. The seasonal demand for the high gravity motor fuels is nearing an end and some refiners are not offering any grades above the U. S. Motor. Several sellers have arbitrarily made the same advances in their higher gravity grades that they did in the U. S. Motor with practically no movement at the higher prices. Some 400 endpoint gasoline was moving at 9¼ to 9½ cents, 375 endpoint 9½ to 9⅝ cents, and 360 and 350 endpoint 9¾ cents. Naphtha prices were advanced a minimum of one-half cent.

Kerosene and Distillate

The range in kerosene prices did not change during the week because two refiners were willing to sell 41-43 material at 5½ cents. Most of the refiners were selling this grade at 5⅝ to 5¾ cents. The higher gravities were bringing a minimum of 6 cents.

The distillates demand is slow with no improvement in prices.

Fuel Oil and Gas Oils

Most of the spot sellers of fuel oil have advanced their fuel oil prices from 2½ to 5 cents a barrel. The largest advances were made in the higher gravities. The higher crude oil prices have added to the attractiveness of all high gravity fuel oils secured in a skimming operation.

One large seller of high gravity fuel oils in Oklahoma is now storing his output along with gas oil. The company is building cracking units which will be in operation later in the summer. This refiner predicts that the higher crude oil prices will result in a gradual advance in all fuel oil and gas oil prices.

Several refiners have advanced their industrial grades of gas oil to 2½ cents but some material is still available at 2⅜ cents.

Natural Gasolines

Natural gasolines after a period of declining prices since early April advanced sharply the latter part of last week. The A and AA grades were strong at 7¾ to 8 cents. Grade B and BB, 7½ cents, and Grade C, 7¼ cents. The higher refinery prices have aided the movement of natural gasoline and a further improvement is expected the first of June.

Lubricants and Wax

The price range on some grades of bright stocks was widened due to the fact that two manufacturers advanced their prices. The products of other manufacturers were still available at the low of last week's prices. Steam refined cylinder stocks are steady with some of the manufacturers sold up for June on both bright stock and steam refined cylinder stocks. Neutral oil prices are unchanged.

Wax is weak with 3 cents a nominal price on 124-126 material.

BROBERG TO TULSA

Earl J. Broberg is being transferred from the engineering department of the Parkersburg Rig & Reel Co. at Parkersburg, W. Va., to Tulsa to assume the duties of field engineer for that organization, and succeed L. G. E. Bignell, who was recently made petroleum engineering editor of The Oil and Gas Journal.

REMEDYING BRAKE TROUBLES

I. H. Grancell, of the Best-o-Life Corp., is in Tulsa for the purpose of remedying brake troubles and producers and rotary contractors with scoring, grabbing or slipping troubles, may reach him through the Oil Well Supply Co., National Supply Co. or Continental Supply Co.

LEGAL

OIL AND GAS MINING LEASES on allotted Indian land under the Jurisdiction of the DEPARTMENT OF THE INTERIOR in Caddo, Comanche, Cotton, and Tillman Counties, Oklahoma, will be sold at Public Auction at the Kiowa Indian Agency, Anadarko, Oklahoma, on June 12th, 1929. For list giving full particulars and description of land, write J. A. BUNTIN, DIST. SUPT., in CHARGE, Kiowa Indian Agency, Anadarko, Oklahoma.

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QUESTIONS ON STANDARDIZATION ARE SENT OUT BY CHAIRMAN PEW

The American Petroleum Institute's program of standardization of oil field equipment is expected to be more firmly established as a result of a questionnaire sent out to purchasers of equipment by J. Edgar Pew, chairman of the Institute's general committee on standardization.

Some of the larger oil companies are inspecting all their purchases in order to be sure that the material bought is made in compliance with A. P. I. specifications.

"It has been reported," says Chairman Pew, "that discrepancies have been found and in one case, when the inspection by the purchaser was very rigid, certain manufacturers refused to quote on materials in accordance with A. P. I. standards, either because the inspection was too strict or possibly because they did not desire to furnish A. P. I. material.

"It has also been reported that some licensed manufacturers supplying A. P. I. materials are not affixing the A. P. I. monogram as sitpulated in the specifications.

As to Limited Inspection

"The question has again been raised as to whether or not the Institute should install a limited inspection service in order to verify that its standards are being complied with, and it is believed that such a step will not be necessary, inasmuch as the same service should be obtained if both manufacturers and users co-operate in the utilization of the specifications to the same extent as they have done in the formulation of those specifications, and if due diligence is exercised by both parties to live up to the spirit and letter of the specifications.

"We are now attempting to analyze the entire situation and ascertain just where we stand from the standpoint of service rendered by the specifications, compliance with the specifications by the manufacturer, etc., etc. If any specification is not giving the service intended or expected, we should ascertain the reason so that the necessary revisions or modifications may be made.

"If material, advertised or stated to be in accordance with A. P. I. standards, does not comply with the specifications, this practice should be corrected in justice to those manufacturers who are complying with the standards.

"If the purchaser does not insist on strict compliance with the specifications or does not advise the Institute of any irregularities in the specifications coming to his knowledge, the Institute can only assume that the specifications are being complied with; but if any manufacturer persists in furnishing material, stamped with the A. P. I. monogram, that is not in accordance with the specifications, if the purchaser will advise the Institute of such violations, it will be the duty of the Institute to advise all of its members of such violations, in order to protect those manufacturers that are complying with its specifications.

A.P.I, ACCEPTS WILBUR'S INVITATION TO CONFERENCE

(Continued from Page 29)

rick, chairman of the board, Prairie Oil & Gas Co.; J. Howard Pew, president Sun Oil Co.; L. J. Drake, president Union Tank Car Co.; L. L. Marcell, chairman of the board, White Eagle Oil & Refining Co.; W. G. Skelly, president Skelly Oil Co.; J. C. Van Eck, president Shell Union Oil Corp.; A. E. Watts, vice president Sinclair Consolidated Oil Corp.; H. O. Caster, vice president H. L. Doherty & Co.; F. R. Coates, vice president Henry L. Doherty & Co.; W. M. Irish, president Atlantic Refining Co., R. C. Holmes, president The Texas Company; C. B. Ames, vice president The Texas Company; H. B. Earhart, president White Star Refining Co.; John L. Gray, vice president Shaffer Oil & Refining Co.; E. G. Seubert, president Standard Oil Co. of Indiana; C. H. Kountz, president Prairie Pipe Line Co.; W. S. Farish, president Humble Oil & Refining Co.; H. M. Dawes, president Pure Oil Co.; R. W. Stewart, T. A. Dines, president Midwest Refining Co.; S. A. Guiberson Jr.; Fayette B. Dow, counsel American Petroleum Institute; C. W. Hadley, vice president Vacuum Oil Co.; Walter C. Teagle, president Standard Oil Co. (New Jersey), and E. J. Bullock, vice president Standard Oil Co. of Indiana.

REQUA NAMED CHAIRMAN COLORADO CONFERENCE

(Continued from Page 29)

bers of the board, those in attendance were: E. B. Reeser, president, and W. R. Boyd, executive vice president, American Petroleum Institute; James A. Veasey of the Carter Oil Co. and member of the Committee of Nine of the Mineral Section, American Bar Association, as well as member of the Committee of Nine appointed by former Secretary Hubert Work as chairman of the Oil Board to consider and formulate legislation for the several oil states to promote oil conservation; Fayette B. Dow, counsel, American Petroleum Institute; W. N. Davis, vice president, Phillips Petroleum Co.; R. C. Holmes, president, The Texas Company and chairman of the General Committee representing the American Petroleum Institute that recently placed the plan of the Institute for oil conservation before the Oil Board; C. B. Ames, vice president and counsel, The Texas Company; Assistant Secretary Dixon and Solicitor Finney, of the Department of the Interior, with E. S. Rochester, secretary of the Oil Board.

ASSOCIATIONS WILL SEND REPRESENTATIVES

A number of state and district oil men's associations have signified their intention of sending representatives to the oil conference in Colorado Springs beginning June 10. Word received by Wade H. James of Tulsa, president of the Mid-Continent Royalty Owners Association indicated representation as follows:

Gulf Coast Oil Producers Association—R. L. Young and Dan G. Harrison, both of Houston.

Texas Independent Oil Men's Association—State Senator J. D. Parnell, Wichita Falls.

South Oklahoma Independent Oil Men's Association—Wirt Franklin, Ardmore, and B. A. LaSalle, Ada.

National Association of Independent Oil Producers—W. H. Gray, C. J. Wrightsman, H. F. Wilcox, of Tulsa; W. R. Ramsey and T. B. Slick of Oklahoma City; J. S. Cullinan, Houston, Texas, and O. C. Harmon, Nowata, Okla.

Kansas Oil & Gas Producers Association—W. H. Sproule, Sedan, and Mark D. Mitchell, Independence.

Independent Oil Men's Association of Oklahoma—United States Senator W. B. Pine, Okmulgee and Washington; James G. Lyons, Okmulgee, and Harry H. Diamond, Holdenville.

Mid-Continent Royalty Owners Association—Wade H. James, Tulsa; Lee Scott, Wichita, Kan.; E. G. Bedford, Midland, Texas; Harley Henton, Shreveport, La.

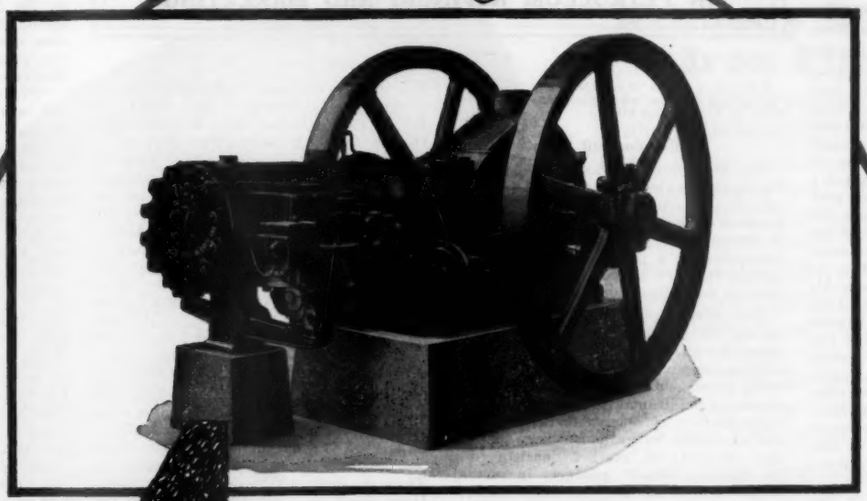
Ohio Oil & Gas Men's Association—James W. McMahon, Toledo.

Northwestern Pennsylvania Oil & Gas Association—D. T. Andrus, Bradford.

Venango County Oil Producers Association—David B. McCalmont, Titusville.

Louisiana Independent Oil Producers Association—A. R. Carmody, Shreveport, and W. Scott Heywood, Jennings.

Announcing the new



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TICO GAS ENGINES

Of Interest to Sales Departments

CONTRACTS SIGNED FOR AVIATION GASOLINE

NEW YORK, May 25.—The largest group of contracts for aviation gasoline ever secured in America have just been signed by the Richfield Oil Co. of California, according to C. M. Fuller, president, who estimates that within the next 12 months the sales total of these contracts will be not less than $2,500,000. The Transcontinental Air Transport which under the technical direction of Col. Charles A. Lindbergh is to start a transcontinental combination air and railway system from New York to Los Angeles on July 1 has just contracted for Richfield aviation gasoline for its western division, according to Mr. Fuller.

Richfield is supplying the Western Air Express for the service to Kansas City of which the division from Los Angeles to Albuquerque started May 15, and has established depots with complete equipment at Kingman and Holbrook, Arizona, Albuquerque, New Mexico, Amarillo, Tex., and Wichita and Kansas City, Kan. In addition Richfield is taking care of the requirements of this company at Los Angeles, San Francisco, Las Vegas, Nev., and Salt Lake City, Utah.

The Standard Air Lines, which has been successfully running on a combination air and railway system with the Texas and Pacific Railway between Los Angeles and St. Louis, has placed servicing points at Los Angeles, Phoenix, Tucson, Douglas, Ariz., and El Paso for Richfield which is also supplying the entire aviation gasoline requirements of the Maddux Air Lines at San Francisco, Fresno, Bakersfield, San Diego and Imperial, Calif., Phoenix, Ariz., and Agua Caliente, Mex.

Mr. Fuller also announces that Richfield is starting the distribution of its aviation gasoline on the Atlantic seaboard, and has closed contracts at 40 of the largest airports in the East, including Newark and Hasbrouck Heights, N. J., Wheeling, W. Va., and many of the other leading fields.

WEIGHT CONFERENCE IN JUNE

At the National Conference of Weights and Measures to be held in Washington, D. C., on items of interest to marketers of petroleum products are tentative specifications and tolerances for grease measuring devices which will come up for review and final action this year. Metering systems for gasoline measurement also will be considered.

Detailed information regarding the proposed changes can be secured from F. S. Holbrook, secretary of the conference at Washington, D. C. Marketers who expect to attend the conference are requested to send their names to R. P. Anderson, American Petroleum Institute, 250 Park Ave.

SAVES TIME WITH AIRPLANE

E. L. Miller newly appointed vice president of the Shell Petroleum Corp. in charge of sales is now using a tri-motored Fokker plane in making inspection trips to various division points. Mr. Miller believes that the use of the airplane will reduce in half the time required for inspection work.

AIRPLANE USES FURNACE OIL

In a trial flight from Detroit to Langley Field, Va., a Stinson monoplane powered by Packard Diesel aircraft engine burned 54 gallons of furnace oil. The trip was made in six hours and fifty minutes. The cost of the furnace oil was $4.68.

Who's Who
IN PETROLEUM REFINING AND MARKETING

By C. O. Willson

Fifth of a series of articles concerned with the major refining and marketing organizations in the United States.

Shell-Union Oil Corp.

The Shell interests rank second to The Texas Companies in the extent of their marketing facilities with an expansion program under way which in the course of two or three years may place the two companies on a parity in leadership assuming that one or more of their competitors do not eclipse both.

The Shell-Union Oil Corp., approximately 75 per cent of whose stock is owned by the Royal Dutch-Shell, is the holding company in the United States for Shell operations. In the past year purchases of additional properties and the centralization of operations with a general expansion program has very materially widened the market outlets for the familiar "Shell" products in several areas. Following are the more important changes which have been completed or are now under way:

Changing the name of the Roxana Petroleum Corp. to the Shell Petroleum Corp., which is now the operating subsidiary in the Middle West and Southwest.

Consolidating the operations of the New Orleans Refining Co. with the Shell Petroleum Corp.

Purchase of the New England Refining Co. and organization of Shell-Eastern Petroleum Products, Inc., for refinery and marketing operations in the East.

Change in name of Shell Co. of California to Shell Oil Co. of California.

These changes, coupled with steady expansion, have given a correlation in operation necessary for a national marketing program.

Refineries

Following is a list of the Shell refineries based on The Oil and Gas Journal's 1929 Survey of Petroleum Refining:

Shell Oil Co. of California
(All plants in California)

Location—	Daily crude oil capacity
Martinez	35,000
Watson	50,000
Coalinga	3,000
Total	88,000

Shell Petroleum Corp.

Wood River, Ill.	46,000
East Chicago, Ill.	27,000
Arkansas City, Kans.	27,000
Norco, La.	15,000
Houston, Texas*	25,000
Total	140,000

*Under construction.

Shell Eastern Petroleum Products, Inc.

Boston, Mass.*	30,000
Grand total	258,000

*Temporarily shut down.

These refineries are well located from the standpoint of distribution of petroleum products and with the exception of the Arkansas City plant all have coastal or inland water transportation facilities available. In addition to the refineries the Shell companies are manufacturers of natural gasoline. Including all the subsidiary companies the total capacity is approximately 500,000 gallons daily.

Marketing Program

The Shell-Union Oil Corp. recently announced an expansion program through its operating companies to include every state in the United States except Texas. At the present time the Shell distribution covers the main consuming centers of the United States. The Shell Oil Co. of California markets in California, Oregon, Washington and New Mexico.

The Shell Petroleum Corp. markets throughout the Middle West as far east as Ohio, Kentucky and Tennessee on the south, Arkansas and Oklahoma in the Southwest and Colorado in the Rocky Mountain region. In the New England states the company markets through the stations formerly owned by the New England Refining Co., and has started on an expansion program which will include all the coastal states from Maine to Texas. The Shell marketing extends across the Great Lakes into Canada.

Although the Shell companies in the United States are primarily interested in the development of domestic markets a part of the output of its coastal refineries finds its way to foreign countries. Through their affiliation with Royal Dutch-Shell the companies in this country are a part of the dominant organization in foreign markets.

In addition to refining and marketing properties the Shell companies are large producers and buyers of crude oil, with a pipe line system connecting all of its refineries.

FARMER ORGANIZATIONS NOW LARGE MARKETERS

By Charles E. Kern

Washington Bureau. The Oil and Gas Journal

WASHINGTON, D. C., May 25.—Approximately 300 farmers' associations for handling gasoline, kerosene, motor oils and greases, have been organized within the last few years the Department of Agriculture states.

Minnesota farmers have led the way in this new co-operative movement. As early as 1921 an association was established to supply the oils needed for motor cars and farm machinery. Today there are in that State more than 50 active associations operating truck distributing routes. There is also an overhead organization for consolidating the purchasing orders.

Illinois, Nebraska and Wisconsin are the other States in which there has been much farmer activity along similar lines. The Illinois Farm Supply Co. is buying oils and greases for 16 local companies, some of which operate as many as five stations.

NAPHTHAS NOT TAXABLE

Effective July 25 operators of dry cleaning establishments in Nebraska will no longer be required to pay a 4-cent tax on naphtha and Stoddard Solvent. Governor Weaver has signed a bill which exempts from taxation as motor fuel any naphtha or benzine with an initial boiling point of 200 degrees Fahrenheit or more.

The passage of a bill ends a long fight in Nebraska in which owners of dry cleaning establishments have endeavored to secure exemption from paying a gasoline tax on special naphthas. The fight was first carried to the courts which uniformly held that since the old Nebraska law made no distinction between liquid petroleum products as motor fuels, the special naphthas were not exempt from the state gasoline tax.

TRACTOR CONSUMPTION OF KEROSENES TO INCREASE

CHICAGO, May 25.—Tractors in use on the farms of the United States this spring total 854,000, according to figures issued today by Milton W. Anderson, president of the United Tractor and Equipment Corp.

"Production in 1929 will exceed 200,000 units, the replacement market alone tanking 80,000 or more," he stated.

"Illinois leads the Union, with an estimated total of 70,000 in use on its farms today. Iowa is second, with almost 60,000, and Ohio has 56,600. Wisconsin stands fourth, 54,664, and California has 50,700. The next five states are Kansas, 49,681; New York, 48,400; Minnesota, 41,849; Indiana, 41,705; and Pennsylvania, 37,260. Only three states have fewer than 1,000 each, New Hampshire, 940; Rhode Island, 612; and Nevada, 260.

"At least 1,500,000 farms in the United States will adopt tractors within a few years. Of our 6,371,400 farms 2,533,335 are 100 acres or more. All these two and one-half million are large enough for the economical use of a tractor. Numerous smaller farms successfully can use them, too, so the estimate of 1,500,000 farms is highly conservative."

DIXIE DISTRIBUTORS INCREASE MEMBERSHIP

CHICAGO, May 25.—The Dixie Distributors of Illinois have increased their membership to twelve oil companies, several being the leaders in their locality. The organization is operating under a franchise from the original Dixe Distributors of Michigan. Branch organizations are now active in Michigan, Illinois, Wisconsin, Ohio, Nebraska and Missouri. Other states are being organized and a Federation of Dixie Distributors is considered as probable.

The officers of the Illinois organization are: W. C. Moore of the Moore Oil Co., LaSalle, president, and Harry Renfro, of the Tulsa Oil Co., Springfield, secretary-treasurer. The members in addition to those named above are, the Humm Oil Co., Aurora; Tri-City Oil Co., Moline; Prescott Oil Co., Dixon; Wahle Bros., Chenoa; Lain Oil Co., Bloomington; Gold Star Oil Co., Havana; Quincy-Home Oil Co., Quincy; Ritcher Oil Co., Taylorville; Okaw Valley Oil Co., Shelbyville; and the Norton Oil Co., Lamont.

NEW BOOK ON MARKETING

The details of bulk station and service station operation coupled with discussion of sales promotion plans form the subject matter of a book by R. H. Thomas on "The Merchandising of Petroleum Products" which is now available from the publishers, The Homestead Co., 19th and Grand Aves., Des Moines, Ia. ($2.50)

Mr. Thomas is well qualified to discuss the many phases of petroleum marketing. For several years he was connected with the sales department of the Standard Oil Co. (Indiana). He served as salesman and sales manager for one of the company's divisions. From 1924 to 1927 he was manager of the Mason City, Iowa, sales division. He resigned in 1927 due to ill health and has since completed the writing of the book.

The book is divided into five general parts. Part 1 deals with Agents; Part 2, Service Station Salesman; Part 3, The Salesman and his Duties; Part 4, Complaints; and Part 5, Miscellaneous. The book will be of special value to those in the oil industry who are directly connected with wholesaling and retailing of petroleum products.

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Kennedy Malleable Iron Fittings

help pipe fitters make a good job quickly and economically.

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They are reasonably priced, and quickly obtainable in any size and quantity. Ask your dealer for Kennedy Malleable Iron Pipe Fittings for your next job and see how they compare with others you have used.

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ECONOMY IN TRANSPORTATION GEARED FOR THIS SWIFT AGE LIES IN THE VALUE OF time saved AS WELL AS IN COST PER MILE OF TRAVEL

Wichita to Alaska and Return
—13085 Miles in 127 Hours.

Parker Cramer flew a Monoplane Cessna over half way around the world in five days. His only maintenance was one spark plug cleaned and one valve clearance adjusted.

Monoplanes Cessna are being delivered to New York regularly for eastern buyers. They fly the 1325 miles in 11 to 12 hours. The fastest train time is over 40 hours.

Our records for three average trips to New York show a total cost for gas and oil per hour of $2.50, $2.36 and $1.76. Total cost of trips less than $25.00 each—slightly under 2c per mile. Train fare without Pullman for this trip is $55.54.

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THERE comes a time in the life of every oil well when decided symptoms of spring fever are evident. Flowing wells become sluggish, indolent, even inactive when the natural pressure fails. It is then a tonic is needed--a little prodding, as it were, to stimulate production.

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Detailed information may be obtained from any branch of the National Supply Companies, or the Oil Well Supply Company, located in all oil fields, or from any Westinghouse district office.

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NEW LOCATIONS IN TEXAS PANHANDLE AND NORTH AND WEST TEXAS FIELDS

TEXAS PANHANDLE

Carson County

Ryan Consolidated Oil Co.'s No. 3 B. F. Block, 990 feet north and 330 feet west of SE cor. NE, Section 111, Block 4, I.&G.N. Survey. Gulf Production Co.'s No. 2 Cooper, 330 feet south and 990 feet east of the NW cor. of the SW of Section 5, Block 9, I.&G.N. Survey.

Gray County

Ray & Massie's No. 4 A. Chapman, 330 feet south and east of the NW cor. of the SE of the SW of Section 51, Block 25, H.&G.N. Survey. British-American Oil Co.'s No. 1 Purviance and others, 330 feet south and east of the northwest corner of the east 160 acres of Section 61, Block B-2, H.&G.N. Survey.

Hutchinson County

C. B. Penny's No. 2 Johnson Brothers, 330 feet north and east of the SW of the W half of the NE of Section 35, Block Y. Phillips Petroleum Co.'s No. 1 Johnson Brothers-Ward, 330 feet south and east of the NW cor. of the W half of the NW of Section 34, Block Y.

Moore County

Dana Oil & Gas Co.'s No. 1 J. F. Anthony, at the C of the NW of Section 260, Block 44, H.&T.C. Survey.

Wheeler County

Gillispie and others' No. 1 W. M. McMurtrey, at the C of the NW of the SE of Section 67, Block 17, H.&G.N. Survey. Upham Gas Co.'s No. 1 I. Close-Gooch, at the C of the NE of the SE of Section 81, Block 23, H.&G.N. Survey.

NORTH CENTRAL AND WEST TEXAS

Archer County

Brown Farm Oil Co.'s No. 2 E. T. Brown, 150 feet north and 2,100 feet east of the southwest corner of the E. T. Brown 320-acre tract out of Section 2, S.P.R.R. Survey, A-921. Same company's No. 3 E. T. Brown, 150 feet north and 1,500 feet east of the southwest corner of the E. T. Brown 320-acre tract out of Section 2, S.P.R.R. Survey, A-921. F. H. Gohlke's No. 4 L. F. Wilson-B, 274 feet south and 517 feet west of the northeast corner of Lot 32, Wilson's Geraldine Subdivision. Panhandle Refining Co.'s No. 1 S. B. Orton and others-A, 450 feet south and 150 feet west of the northeast corner of the east 40 acres of the north 80 acres of the west 120 acres of the S. B. Orton and others 320-acre tract out of Section 2, S.P.R.R. Survey, A-1,209. P. B. Scott and others' No. 1 J. B. Miller, 580 feet north and 1,610 feet east of the southwest corner of the J. B. Miller 160-acre tract out of Section 20, A.T.N.C.L. Survey. The Texas Company and others' No. 3 Kemp & Kempner-B, 500 feet north and 1,937 feet west of the southeast corner of Block 67, Kemp Wichita Valley Land. United Producers and Petroleum Production Co.'s No. 1 W. R. Brown-B, 450 feet north and 150 feet east of the SW cor. of Section 105, A.T.N.C.L. Survey. E. G. Christie and others' No. 1 C. Campbell, 150 feet south and west of the northeast corner of the south 75 acres of the north 150 acres of the C. Campbell 200-acre tract out of the Allison Arms Survey, A-5.

Continental Oil Co.'s No. 1 Falls County School Land, 150 feet south and east of the NW cor. of Section 16, Falls County School Land, A-130. Same company's No. 1 J. T. Richardson-B, 150 feet south and east of the NW cor. of Section 10, Thomas McCoy Survey, A-269. Humble Oil & Refining Co.'s No. 2 Falls County School Land, 1,000 feet south and 270 feet east of the NW cor. of Section 33, Falls County School Land. Humble Oil & Refining Co. and Fain-McGaha Oil Co.'s No. 7 W. J. Logan-B, 150 feet north and 750 feet west of the southeast corner of their lease "B" out of the Allison Arms Survey, A-5. C. M. Johnson and others' No. 1 W. M. Justice, 150 feet north and 273 feet east of the southwest corner of Lot 7, W. H. Patton Survey, A-345. Prairie Oil & Gas Co.'s No. 27 J. T. Richardson-B, 150 feet south and 1,050 feet east of the northwest corner of their lease "B" out of Section 1, South Anderson Ranch Subdivision. Same company's No. 2 J. T. Richardson (Section 13), 750 feet north and east of the SW cor. of Section 13, Thomas McCoy Survey, A-269.

Brown County

M. T. Anderson's No. 4 A. Leatherwood, 1,350 feet south and 200 feet east of the northwest corner of the south 150 acres of Section 11, Juan Delgado Survey No. 785. Beall-Gulley & Michael's No. 1 H. H. Henslee, 1,461 feet south and 150 feet east of the northwest corner of the P. Curlong Survey No. 151. Humble Oil & Refining Co.'s No. 23 J. T. Hodnett-A, 920 feet north and 2,600 feet east of the southwest corner of their lease "A" out of the heirs J. M. Harris Survey No. 784. McClung & Hickey's No. 1 N. N. Staggs, 925 feet northwest of the southeast line and 200 feet southwest of the northeast line of the N. N. Staggs 76-acre tract out of the John S. Thom Survey No. 53. S. B. Owens, Inc.'s No. 1 S. H. Henry, 150 feet south and east of the northwest corner of the east 60 acres of the south 170 acres of the S. H. Henry 306-acre tract out of the Seth Ingram Survey No. 154.

Callahan County

Condor Petroleum Co.'s No. 1 T. Windham, 200 feet north and 300 feet east of the SW cor. of the SW of the SE of Section 343, G. W. Denton Survey. Same company's No. 2 Windham, 150 feet south and 660 feet east of the NW cor. of the SW of Section 4, Block 3, S.P.R.R. Survey. C. A. Redmond and others No. 2 G. A. Chrane, 450 feet south and west of the NE cor. of the SW of Section 9, Block 6, S.P.R.R. Survey.

Clay County

Mid-Continent Holding Co.'s No. 1 J. D. Stine and others-D, 750 feet north and 150 feet east of the SW cor. of the SE of Section 7, Parker County School Land, A-374. Mid-Continent Holding Co.'s No. 4 Luther Wright, 150 feet south and east of the NW cor. of the SE of Section 2,632, T.E.&L. Survey. Same company's No. 5 Luther Wright, 450 feet north and 150 feet east of the SW cor. of the NE of Section 2,632, T.E.&L. Survey.

Mid-Continent Holding Co.'s No. 6 Luther Wright, 580 feet north and 450 feet east of the SW cor. of the NE of Section 2,632, T.E.&L. Survey.

Coleman County

Hoffman & Page and others' No. 1 J. Fox Casey, 150 feet south and 300 feet west of the northeast corner of the south 32 acres of the north 72 acres of the east 96.5 acres of Section 3, H. Crocheron Survey No. 657. S. B. Owens and others' No. 1 John Mills, 2,270 feet north and 2,155 feet west of the southeast corner of the John H. Woods Survey No. 483. Vacuum Oil Co. and others' No. 1 Alice Bennett, 150 feet south and east of the northwest corner of Lot 24, Lewis Johnson Survey No. 480. Cunningham and others' No. 8 G. W. and L. P. Jennings-C, 150 feet south and 550 feet west of the northeast corner of their lease "C" out of the A. S. Lipscomb Survey No. 94. Stepp & Kiester's No. 3 C. E. Shore, 150 feet south and 2,401 feet west of the NE cor. of Section 72, Block 1, G.H.&H. Survey.

Cooke County

Kewanee Oil & Gas Co.'s No. 16 R. J. Timmis-A, 222 feet south and 438 feet east of the northwest corner of their 80-acre lease "A" out of the E.T.R.R. Survey No. 5, A-363. M. Mitchell and others' No. 1 B. F. Mitchell, 871 feet north and 1,211 feet east of the southwest corner of the Thomas Toby Survey, A-1,062. The Texas Company's No. 9 H. L. Dennis, 450 feet south and 476 feet east of the northwest corner of their 52-acre lease out of the T. J. Hutchinson Survey, A-484.

Crane County

Gulf Production Co.'s No. 64 J. T. McElroy, 2,102 feet south and 1,980 feet west of the northeast corner of the Gulf Production Co.'s lease out of Section 201, Block F, C.C.S.D.&R.G.N.G.R.R. Survey.

Fannin County

Imperator Oil Corp.'s No. 1 R. H.

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is again selected for its suitability to foreign service where [a] Flexibility of operation, [b] Low cost of maintenance, [c] Stability of product, are all so essential.

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Back Pressure Regulation in Gasoline Manufacture

IF YOU wish to hold back any pressure between 300 and 800 lbs.—and have a *continuous* discharge

(a) into a distributing system having close to atmospheric pressure or

(b) against a back pressure slightly lower than the pressure to be controlled—

—or if an auxiliary pressure for operation of the regulator is desired—

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Every gasoline plant can employ this Regulator to great advantage. It is also available in a type that provides for intermittent discharge.

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Owens, 220 feet north and 580 feet west of the southeast corner of the D. Crenshaw Survey.

Garza County

Gulf Production Co.'s No. 1 H. B. Street-D, at the C of Section 7, Block 8, H.&G.N. Survey.

Grayson County

F. H. E. Oil Co.'s No. 1 R. C. Dalton, 2,044 feet south and 150 feet west of the northeast corner of the James Ingram Survey. Murchison Oil Co.'s No. 1 G. W. Wall, 1,744 feet south and 150 feet west of the northeast corner of the James Ingram Survey. Simpson-Fell Oil Co.'s No. 1 H. Guilloud, Sr., 2,044 feet south and 450 feet west of the northeast corner of the James Ingram Survey.

Howard County

Amerada Petroleum Corp. and Rycade Oil Corp.'s No. 10 Dora Roberts, 990 feet south and 330 feet west of the NE cor. of Section 137, Block 29, W.&N.W.R.R. Survey. Humble Oil & Refining Co.'s No. 3 H. R. Clay, 1,650 feet south and 330 feet east of the NW cor. of Section 138, Block 29, W.&N.W.R.R. Survey.

McGinley & Seigler's No. 1 Harry Hyman, 330 feet south and 990 feet east of the NW cor. of Section 91, Block 29, W.&N.W.R.R. Survey. Moody Oil Corp.'s No. 12 Dora Roberts-E, 1,650 feet south and west of the NE cor. of Section 136, Block 29, W.&N.W.R.R. Survey.

Mitchell County

H. H. Adams' No. 2 I. L. Ellwood, 1,170 feet north and 2,490 feet east of the SW cor., Section 15, Block 18, S.P.R.R. Survey.

Pecos County

McMan Oil & Gas Co.'s No. 6 Mrs. M. A. Smith-C, 3,260 feet north and 1,740 feet east of the SW cor. of Section 25, Block 194, G.C.&S.F. Survey. Marland Production Co.'s No. 1 University Land, 1,620 feet south and 1,020 feet west of the SE cor. of Section 10, Block 17, University Land. Mid-Kansas Oil & Gas Co.'s No. 6 Mrs. M. A. Smith, 1,174 feet north and 1,444 feet west of the SE cor. of Section 31, Block 194, G.C.&S.F. Survey. Same company's No. 7 I. G. Yates-D, 821 feet south and 2,824 feet east of the NW cor. of Section 62, Block 1, I.&G.N. Survey. Same company's No. 9 I. G. Yates-H. 250 feet north and 6,821 feet east of the SW cor. of Section 32, Block 194, G.C.&S.F. Survey. Shell Petroleum Corp.'s No. 1 University Land, 990 feet north and 330 feet west of the SE cor. of Section 29, Block 16, University Land. Taylor-Link Oil Co.'s No. 1 University Land, 330 feet north and east of the SW cor. of Section 30, Block 16, University Land.

Reeves County

E. Hemby and others' No. 1 M. G. Huling and others, 1,980 feet south and 660 feet east of the NW cor. of Section 16, Block 59, School Land.

Wichita County

Golding-Cochran & Mayfield's No. 2 J. L. and T. J. Waggoner, 150 feet north and east of the SW cor. of Lot 23, H. George Survey, A-454. W. H. Hammon's No. 9 Mitchell and others, 790 feet south and 200 feet east of the NW cor. of the J. T. Lewis Survey A-460. Panhandle Refining Co.'s No. 5 T. L. Burnett and others, 450 feet north and 300 feet east of the SW cor. of the NE of the SE of Section 6, S.A.&M.G. Survey, A-464. Riner & Bailey's No. 5 N. Michie-A, 200 feet north and 150 feet east of the SW cor. of their 39.8-acre lease "A" out of the L. Netherly Survey, A-240. J. G. Rowe and others' No. 3 J. L. and T. J. Waggoner, 150 feet south and 450 feet west of the NE cor. of Lot 13, Section 2, G.C.&S.F., A-772. Stump & Heydrick's No. 3 B. N. Ferguson, 750 feet south and 190 feet east of the NW cor. of Lot 11, J. T. Lewis Survey, A-462.

Wilbarger County

Empire Gas & Fuel Co.'s No. 10 W. T. Waggoner-B, 870 feet north and 589 feet east of the SW cor. of Section 32, Block 4, H.&T.C. Survey. Gray Back Develoment Co.'s No. 1 W. T. Waggoner-Bateman, 150 feet south and east of the NW cor. of the north half of the SW of Section 15, Block 4, H.&T.C. Survey.

Gray Back Development Co.'s No. 1 W. T. Waggoner-Smith, 150 feet north and west of the SE cor. of Section 50, Block 2, H.&T.C. Survey. Same company's No. 1 W. T. Waggoner-Webb, 150 feet south and east of the NW cor. of the NW of the NE of Section 49, Block 4, H.&T.C. Survey. Hemisphere Oil Co.'s No. 1 R. L. Castleberry, 150 feet north and 550 feet east of the SW cor. of the south half of the SE of Section 67, Block 14, H.&T.C. Survey. Kelly & Barr's No. 1 W. T. Waggoner, 150 feet north and west of the SE cor. of the west half of the NW of Section 22, Block 4, H.&T.C. Survey. R. Robertson and others' No. 2 W. T. Waggoner-Webb, 2,490 feet south and 660 feet west of the NE cor. of Section 10, Block 4, H.&T.C. Survey. Staley-Wynne & Co.'s No. 1 W. T. Waggoner-O, 150 feet south and east of the NW cor. of the south half of the SW of Section 9, Block 4, H.&T.C. Survey. Sumner & Massie's No. 1 W. T. Waggoner, 150 feet south and west of the NE cor. of the west half of the NW of Section 8, Block 4, H. &T.C. Survey. Wilbarger Oil Co.'s No. 3 W. T. Waggoner-A, 500 feet north and 200 feet east of the SW cor. of the NE of the NE of Section 50, Block 4, H.& T.C. Survey.

Winkler County

Southern Crude Oil Purchasing Co.'s No. 2 T. G. Hendricks T-88-P, 2,310 feet south and east of the NW cor. of Section 28, Block 26, School Land.

Young County

L. G. Bradstreet Co.'s No. 1 T. L. Richardson, 1,674 feet south and 1,185 feet west of the NE cor. of the J. G. Maupin Survey, A-1,483. Continental Oil Co.'s No. 7 R. Campbell-B, 1,400 feet south and 600 feet east of the NW cor. of Section 1,390, T.E.&L. Survey. W. L. Hawkins and others' No. 2 J. C. Owens, 525 feet south and 150 feet east of the NE cor. of the G. P. Stewart 110-acre tract out of Section 1, B.B.B.&C. Survey, A-35, and located on the J. C. Owens 160-acre tract. Kimbrell & Lyles' No. 3 E. Dyer, 550 feet north and 150 feet east of the SW cor. of the W. W. Stroud Survey, A-1,707. E. R. Riggs and others' No. 27 J. B. McKinley, 150 feet south and 400 feet west of the NE cor. of Section 1,489, T.E.&L. Survey. Same company's No. 28 J. B. McKinley, 450 feet south and 1,360 feet west of the NE cor. of Section 1,489, T.E.&L. Survey. E. W. Walton and others' No. 1 W. H. Dailey, 150 feet south and west of the NE cor. of the W. H. Daily 205-acre tract out of the S. Tynes Survey A-274. Same company's No. 5 E. R. Prideaux, 450 feet north and 150 feet east of the SW cor. of the north 37 acres of the west 80 acres of the E. R. Prideaux 126-acre tract out of the S. Tynes Survey, A-274. Wise & Jackson and others' No. 8 R. J. Calvin, 750 feet south and 1,425 feet east of the NW cor. of the R. J. Calvin 200-acre tract out of the A. Rohus Survey, A-240. Wootten & Reed and others' No. 1 D. G. Vick, 1,395 feet north and 600 feet west of the most southerly SE cor. of the P. R. Splane Survey No. 4, A-259.

Corrections

Archer County: Freeman-Grebin and others' No. 4 A. M. Hennig, 150 feet north and 450 feet west of the SE cor. of Section 21, G. P. Meade Subdivision. L. M. Pasture Subdivision.

Howard County: Moody Oil Corp.'s No. 13 Dora Roberts-B, 380 feet south and 2,310 feet east of the NW cor. of Section 137, Block 29, W.&N.W.R.R. Survey. Same company's No. 14 Dora Roberts-B, 2,310 feet south and 2,260 feet east of the NW cor. of Section 137, Block 29, W.&N.W.R.R. Same company's No. 11 Dora Roberts-E, 990 feet south and 1,650 feet west of the NE cor. of Section 136, Block 29, W.&N.W.R.R. Survey.

Wichita County: E. P. Bowen's No. 1 S. S. Fassett, 150 feet south and 921 feet east of the SW cor. of the J. Bradford Survey A-27 and located in Section 2, H.&G.N. Survey, A-543.

Wilbarger County: Lewis & Payne's No. 2 W. T. Waggoner, 205 feet south and 205 feet west of the NE cor. of the SE of the SW of Section 17, Block 4, H.&T.C. Survey.

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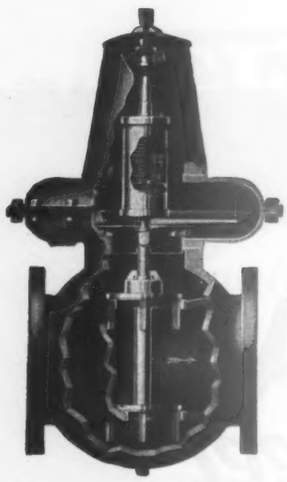

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EXPLAIN APPLICATION OF HYPOCHLORITE PROCESS

(Continued from Page 38)

in bauxite, the filtering medium employed, is effected.

Painter's Naphtha

This product must be low in sulphur content and absolutely free from mercaptons, which readily react with white lead and produce a brownish coloration. Free sulphur, owing to its tendency to react with oils, forming hydrogen sulphile, must also be absent.

Desulphurization of this cut cannot, however, be effectively carried out by means of hypochlorites, the reason for this being that the desulphurization, as distinct from sweetening, of heavier products takes a considerable time owing to the slowness with which the higher sulphur compounds are destroyed. Attempts to increase the activity of the hypochlorite solutions by destabilization, that is to say by neutralization of the free alkali present, generally lead to decomposition due to the extent to which destabilization must be carried to before the speed of the reaction can be increased sufficiently. The procedure usually adopted is to remove the major portion of the sulphur compounds by oleum and finally to sweeten by means of alkaline hypochlorite; the speed at which sweetening occurs does not appear to be much affected by the boiling range of the product treated.

For example, painter's naphtha is made from the approximate cut from Persian crude oil by washing the distillate in the condenser by means of soda or lime to prevent the formation of free sulphur and then treating with oleum. After a thorough lime water wash to remove traces of acid, the oil is distilled, the distillate soda washed and finished by sweetening with alkaline hypochlorite.

Part 4

In the preceding articles the development of the hypochlorite process of refining, the preparation of the necessary solutions and methods of applying them have been briefly described. In this, the final article, a short account is given of the chemical reactions involved in the process.

The initial soda wash applied to distillates before the hypochlorite treatment plays such an important part in the treatment that no description of the chemistry of the hypochlorite process would be complete without an account of that of soda washing. Not only is the amount of hypochlorite required to sweeten or desulphurize a distillate determined by the efficiency of the original soda wash but the properties of the finished product are also dependent on this alkali wash. Thus if the initial soda wash is not given to a gasoline distillate before aerial oxidation of hydrogen sulphide can take place, free sulphur is formed and the final product is corrosive and gives a bad copper dish test.

The chemical actions in soda washing will be considered first.

Soda Washing

The substances present in ordinary distillates which are removed by caustic soda washing include certain sulphur compounds, traces of phenols and traces of naphthenic acids. Of these the sulphur compounds are the most widespread and difficult to remove. Although a small proportion of the sulphur present in petroleum distillates consists of a free sulphur, generally arising from aerial oxidation, a comparatively large proportion is present as hydrogen sulphide while the remainder is in the form of organic derivatives. The last are divisible into two classes: (1) acidic, a property shared with hydrogen sulphide and due to the presence of the .SH group and (2) neutral. The first includes mercaptans which, together with the hydrogen sulphide, are mainly responsible for the unpleasant odor of the unrefined distillates and for the positive reaction given in the well-known "doctor" test. The second class includes the organic sulphides and disulphides, and thiophene and its derivatives.

Hydrogen sulphide can be removed by water washing. This is, however, too lengthy a process and requires too much water to be practicable; furthermore, oxidation, due to air dissolved in the water, may occur, and this must be avoided at all cost. It is therefore usual to employ sodium hydroxide solution instead. Hydrogen sulphide is converted into sodium sulphide or sodium hydrogen sulphide, either of which remains in the spent solution. Qualitatively the acidic organic sulphur derivatives, or mercaptans (RHS, where R is a hydrogen radicle), behave like hydrogen sulphide. But whereas the latter is dibasic and is a comparatively strong acid, the mercaptans are monobasic and only weakly acidic. The sodium mercaptides are in fact readily hydrolyzed by water; in other words the reaction by which they are formed is reversible.

$$RSH + NaOH \rightleftarrows RSNa + H_2O$$

Consequently the removal of a mercaptan from petroleum by agitation with aqueous alkali is never complete; a balance is eventually attained between the concentration of mercaptan (as free mercaptan) in the oil and the concentration of mercaptan (present largely in alkali mercaptide) in the aqueous solution. Moreover, the acidity of the mercaptans (the ease of replacement of the acid hydrogen atom by a metal) rapidly falls off as the molecular weight of the hydrocarbon radicle R is increased. This is well brought out in the following table:

Compound—	Boiling point	Percentage removed from petroleum solution by same quantity of soda solution under identical conditions
Hydrogen sulphide, H_2S.	Gas	100
Ethyl mercaptan, $C_2H_5.SH$	39° C.	97.1
nPropyl mercaptan, $C_3H_7.SH$	68	88.8
Isopropyl mercaptan, $C_3H_7.SH$	59	87.2
nButyl mercaptan, $C_4H_9.SH$	98	63.2
Isobutyl mercaptan, $C_4H_9.SH$	88	62.8
Isoamyl mercaptan, $C_5H_{11}.SH$	118	33.0

When discussing the difficulty of effecting mercaptan removal from even a light distillate by soda washing this table is highly instructive. Consider the highest mercaptan examined, isoamyl mercaptan. It has a boiling point of 118 degrees Centigrade and under the conditions of the experiment (which are comparable with the usual works practice when batch-washing) only 33 per cent was removed. It is unusual for more than 50 per cent, say, of a distillate which is to be soda-washed to be volatile at 118 degrees, so that there is 50 per cent of higher boiling material. If the mercaptans were evenly distributed there would likewise be 50 per cent of mercaptans even less readily removable by soda than isoamyl mercaptan.

The actual figure is probably even higher as shown by the figures for distribution of sulphur. It follows that the complete removal of acidic bodies by soda washing alone is almost impossible; by the batch process, the attainment of equilibrium between mercaptan in the oil and mercaptan in the soda makes complete removal absolutely impossible. Nevertheless, even by the batch process hydrogen sulphide can be entirely eliminated by soda-washing; stress must be laid on this in view of the necessity for removing hydrogen sulphide prior to any subsequent process involving oxidation.

With efficient mixing the balance represented by the reversible equation

$$RSH + NaOH \rightleftarrows RSNa + H_2O$$

is rapidly attained. A multiplicity of washes is, therefore, of advantage; the even greater benefit of the continuous, countercurrent method, in soda-washing, is at once evident.

The effect of concentration of soda upon mercaptan removal is considerable and rather surprising. Meyer and Smith of the Anglo-Persian Oil Co. have shown recently that a given weight of sodium hydroxide will remove more of a given mercaptan from a standard solution in petroleum the greater the dilution at

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which it is used. The explanation of this relationship, which is true only when the weight of alkali is great compared with the total mercaptan present, is as follows. When a mercaptan is added to aqueous sodium hydroxide, or when a sodium mercaptide is dissolved in water, the following equilibrium is set up.

$$RSH + NaOH \rightleftarrows RSNa + H_2O$$

If water is added to this system the equilibrium is displaced to the left, that is more sodium mercaptide is hydrolysed with production of free marcaptan. But if, for example, the system consisting of water, sodium hydroxide, sodium mercaptide and mercaptan is diluted to twice its volume, the quantity of free mercaptan in the aqueous solution will not be doubled, but will only be increased by some lesser factor. Thus the concentration of free mercaptan in the diluted aqueous solution will be less. But if the aqueous solution containing (among other substances) mercaptan is in contact with a petroleum solution also containing mercaptan, there is a constant partition coefficient, i.e.,

$$\frac{\text{Conc. RSH (oil)}}{\text{Conc. RSH (water)}} = K,$$

and this partition coefficient is dependent purely on the solubility of the mercaptan in the oil and in the water, and is entirely independent of the presence of other materials. If, therefore, the aqueous solution is diluted and the concentration of free mercaptan therein decreased, more mercaptan must pass from the oil to the water to maintain the constant partition. That is to say, the efficiency of a given weight of sodium hydroxide for removing a mercaptan from petroleum solution is greater the less the concentration at which it is employed. In practice, there are limits to the dilution owing to the large bulk of the treating solution. For this and other reasons, 5 per cent has been taken as the most convenient concentration for caustic soda.

Besides its acidic character there is another property of the .SH group which has an important bearing on soda-washing. Compounds containing this group readily undergo oxidation; thus hydrogen sulphide is oxidized to elementary sulphur, and mercaptans to organic disulphides. Oxidation may be brought about by atmospheric oxygen or by free sulphur; in the oxidation of mercaptans the latter agent is particularly effective in the presence of aqueous soda. Free sulphur can only be removed from the oil with difficulty. Since, therefore, it is produced from hydrogen sulphide with great readiness by aerial oxidation, it is of the highest importance that unrefined light distillates should be soda-washed as soon after production as possible and that until this is done contact with the air must be avoided. Distillates should, therefore, be washed in the condensing system or at the worm ends.

Lime Washing

Although in the above description, the action of caustic soda has been described, calcium hydroxide can be used instead with similar results. Owing, however, to the lower solubility of lime in water (1.3 grams per litre) a much larger bulk of solution must be employed. With properly designed plant this offers no great difficulty.

Hypochlorite Process

In order to obtain a knowledge of the effect of hypochlorite solutions on the types of sulphur compounds likely to be present in light petroleum distillates, solutions of typical sulphur compounds were prepared in a sulphur-free petroleum ether and treated with sodium hypochlorite solution under various conditions.

Results Obtained

The results obtained may be summarized as follows:

(1) Whereas hydrogen sulphide, mercaptans and disulphides all react to give at least some acid products, no acid products are formed from sulphides or sulphoxides.

(2) Thiophene and sulphones do not react under the conditions employed.

(3) Increase in molecular weight of the sulphur compound (a) decreases the rate of oxidation-di-isoamyl disulphide hardly reacts at all—and (b) decreases the solubility of the oxidation products which become increasingly soluble in the oil layer.

(4) Increase in the free alkali content of the hypochlorite decreases the rate of reaction considerably, and conversely,

(5) Dilution of the hypochlorite increases the rate of reaction. The first point is of great importance, because the acid products neutralize the free alkali of the reagent as they are formed and thus progressively render the hypochlorite more reactive. Consequently, if insufficient alkali is originally present the aqueous solution may actually become acid, when there will be a tendency for chlorination to occur. This, then is the explanation of the narrow limits for alkali content necessary in large scale operations. The retarding influence of free alkali, and the accelerating effect of dilution, are convincingly explained on the assumption that the active oxidizing agent is not sodium hypochlorite, but free hypochlorous acid produced by reversible hydrolysis:

$$NaOCl + H_2O \underset{NaOH}{\overset{H_2O}{\rightleftarrows}} NaOH + HOCl$$

On this assumption, added sodium hydroxide will displace the equilibrium to the left, dilution will move it to the right, and in accordance with the observed facts, the solution will be stabilized or activated, respectively.

Dilution and addition of caustic soda to keep the concentration of the alkali unchanged has the effect of rendering the solution less active. The reason for this is that although by dilution alone the equilibrium in the above equation moves to the right, the increase in the hypochlorous acid formed is not proportional to the dilution. The concentration of hypochlorous acid is lower in proportion so that if the alkali content is kept the same by adding more caustic soda, the ratio of hypochlorous acid to alkali is less than in the original solution. As a result the solution becomes less reactive although as more hypochlorous acid is actually present its oxidation of sulphur compounds attacked by alkaline hypochlorite solution, i.e., mercaptans, proceeds faster.

Organic Sulphides

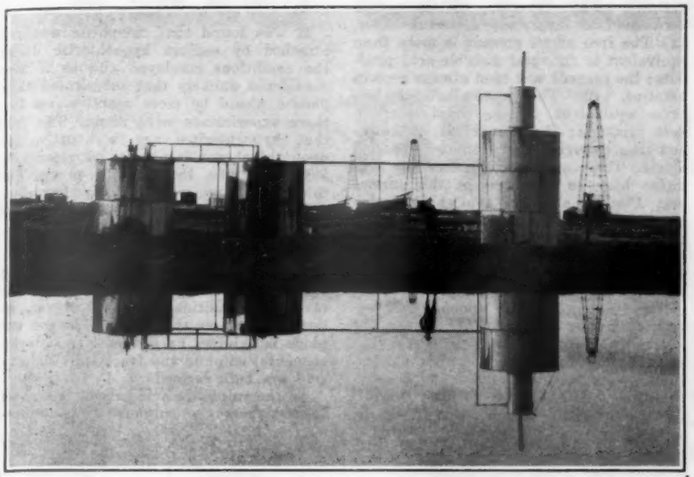
In considering the oxidation of sulphur compounds by hypochlorite, it is convenient to commence with the action of sodium hypochlorite on sulphides. The latter (provided the hypochlorite is sufficiently active when a higher member of the sulphide series is being dealt with) are quantitatively oxidized to sulphones. No traces of any intermediate compounds appear to be formed and hypochlorite is without further action on the resulting sulphones. Four atoms of available chlorine are absorbed for each sulphur atom oxidized. The alkalinity of the hypochlorite does not change appreciably during the reaction. The lower sulphones are more soluble in water than in light petroleum and are found chiefly in the spent aqueous reagent. With increase in molecular weight the resulting sulphone tends to remain in the oil, being more soluble therein than in water; the sulphur content of the oil therefore remains unaltered.

Thus although diethyl sulphone is practically insoluble in petroleum and readily soluble in water, the reverse is true of diisoamyl sulphone. Sulphones are very high boiling and are left as residue if gasoline containing them is distilled. Sulphones of intermediate molecular weight, e.g., dipropyl and di-isobutyl sulphones, can be gradually removed from the petroleum layer by water washing.

The rate of oxidation of sulphides, particularly the lower members, is only slightly affected by the alkalinity of the hypochlorite. The effect is very small, large quantities of free alkali being required to prevent the oxidation occurring within a comparatively few minutes.

Organic Disulphides

The primary oxidation products from a disulphide, unlike those from a sulphide, are acidic, i.e., the sulphonic acid together with a smaller quantity of sulphuric acid; these appear in the aqueous layer as their sodium salts. The formation of sul-



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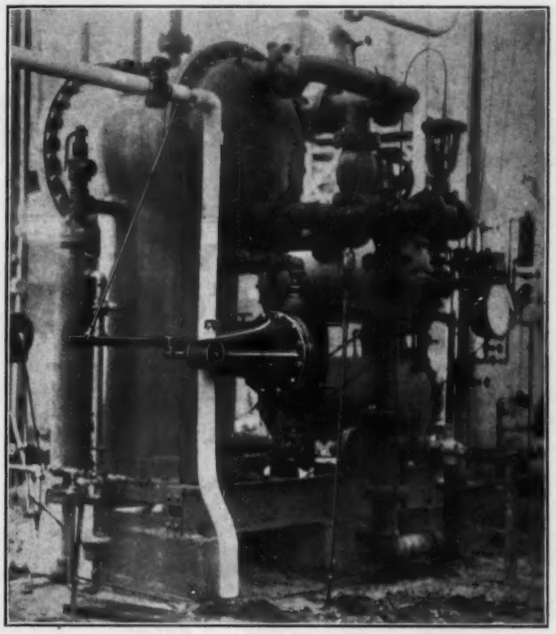

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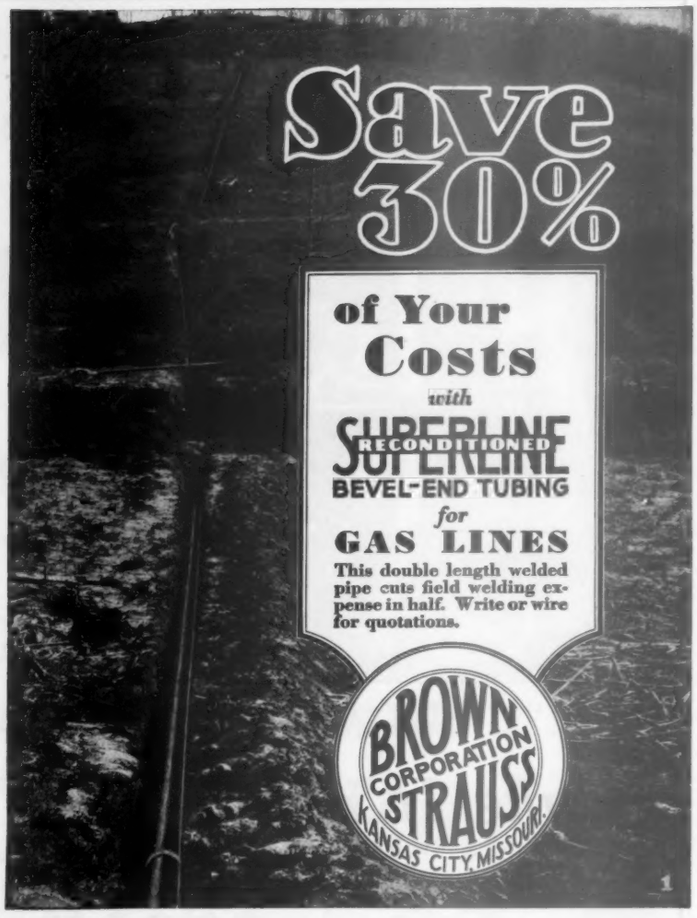

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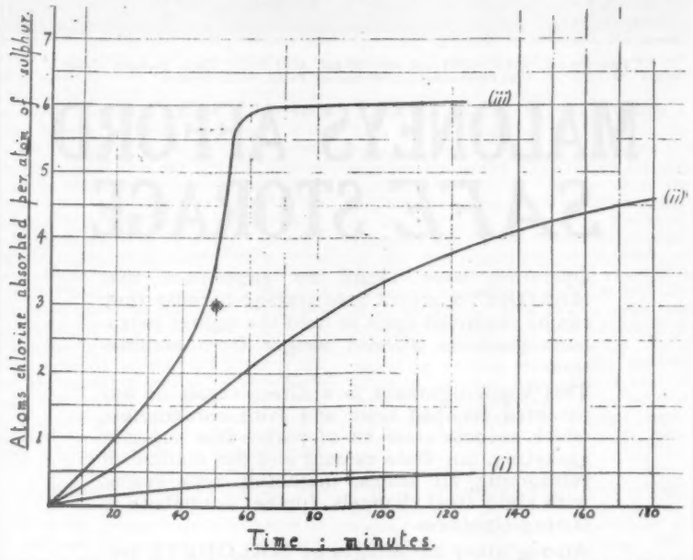
phuric acid is surprising; since sulphonic acids are not further attacked, it must be formed directly from the disulphide. The gradual neutralization of the free alkali by the acidic products make it necessary, in describing the effect of alkalinity on the raction, to distinguish between two somewhat different cases. (1) The free alkali present is more than equivalent to the total possible acid products; the reagent will then always remain alkaline. (2) The free alkali is less than equivalent to the total possible acid products; if the reaction is continued long enough the reagent will become acidic. The reaction under the first condition may be described as the normal one. Plotting atoms of available chlorine absorbed per atom of sulphur originally present as diethyl disulphide against time, curves are obtained of which (1) for a strongly alkaline and (2) for a weakly alkaline solution are typical.

The influence of the added alkali hydroxide is very marked. If, however, the alkalinity of the reagent is so chosen that it falls into the second class, the additional complications causes the absorption-time curve to assume quite a different form (3). The initial part of the



reaction takes the normal course until the acidic primary products have completely neutralized the free alkali present; at that point (*) there occurs a very rapid absorption of available chlorine which continues until the sulphur compound is entirely removed from the petroleum solution; the reaction then tails off and, finally, a slow spontaneous decomposition of the residual dilute acid hypochlorite continues to take place. A considerable evolution of heat occurs at and immediately after the point in the reaction marked (*); the oxidation at this stage is so rapid that it is impossible to isolate any intermediate compounds.

Mercaptans

The apparent course of the reaction between sodium hypochlorite and a mercaptan depends greatly upon the alkalinity of the former. The first action, as stated above, leads simultaneously to the formation of the sulphonic acid, sulphuric acid and the disulphide; the last named, if the reagent is sufficiently active, is destroyed as it is formed and the acids, as their sodium salts, are the only products. But with a more stable solution of hypochlorite a much slower decomposition of the disulphide occurs and this substance then appears as the chief product, accompanied by smaller quantities of the acids which have been formed, for the most part, by direct oxidation of the mercaptan. The first part of the reaction, in which the mercaptan itself takes part, does not appear to be greatly affected by the alkalinity of the reagent, whilst the factors which influence the destruction of the resulting disulphide are those which govern the normal interaction of this type of compound with sodium hypochlorite. The oxidation may be represented diagrammatically thus:

$$RSH \xrightarrow{H_2SO_4} R_2S_2 \downarrow RSO_2H$$

Thiophenes

It was found that thiophene was not attacked by sodium hypochlorite under the conditions employed and as it was considered unlikely that substituted thiophenes would be more reactive, no further experiments were made. The fact that hypochlorites are without action upon thiophenes is not an important objection to the hypochlorite process as thiophenes are comparatively harmless, possess pleasant odors resembling that of benzine and are noncorrosive.

Elemental Sulphur

Elemental sulphur is not attacked by sodium hypochlorite even under the most favorable conditions. It is, however, interesting to note that when hydrogen sulphide is oxidized by sodium hypochlorite, elemental sulphur and traces of sulphuric acid are both formed.

As the sulphuric acid cannot have been formed from the sulphur it must have been derived directly from the hydrogen sulphide. As mentioned above, the formation of free sulphur from hydrogen sulphide renders the preliminary alkali washing of a sulphurous distillate essential.

Calcium Hypochlorite

Although the interaction of organic sulphides with sodium hypochlorite only was studied, there is no reason to suppose that the reactions with the calcium salt are in any way different. This is borne out by the fact that in practice, under similar conditions, the calcium and sodium salts give the same results.

Use of Alkaline Solutions

From the above it is obvious that the alkalinity of the hypochlorite only affects the speed with which the various sulphur compounds are oxidized; if sufficient time is allowed, the ultimate products are always the same. But with a limited time of reaction, as in refinery practice, since some of these variations are more affected than others, the addition of alkali makes the process selective. Thus the initial reaction by which a mercaptan is converted to a disulphide is not appreciably retarded by a concentration of alkali which is sufficient practically to inhibit any further oxidation. With a limited time of reaction, the action is almost entirely confined to the conversion of the malodorous mercaptans to comparatively inoffensive disulphides.

Furthermore, the oxidation of sulphides is also retarded by the presence of free alkali although not so much as is the case with disulphides. If a gasoline containing mercaptans, sulphides and disulphides is treated with alkaline hypochlorite the immediate action is practically confined to the conversion of the

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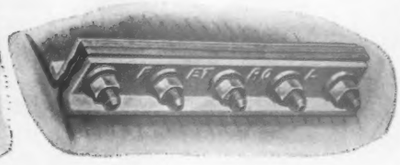

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mercaptans to disulphides; that is to say sweetening rather than desulphurization takes place. Owing to this fact alkaline hypochlorite solutions are particularly suitable for treating cracked distillates because the low concentration of hypochlorous acid due to the presence of excess of alkali is a safeguard against the danger of "chlorination." The term "chlorination" is strictly speaking incorrect since it appears unlikely that any direct substitution occurs; the action probably consists mainly in the addition of hypochlorous acid to unsaturated compounds with the formation of chlorhydrins.

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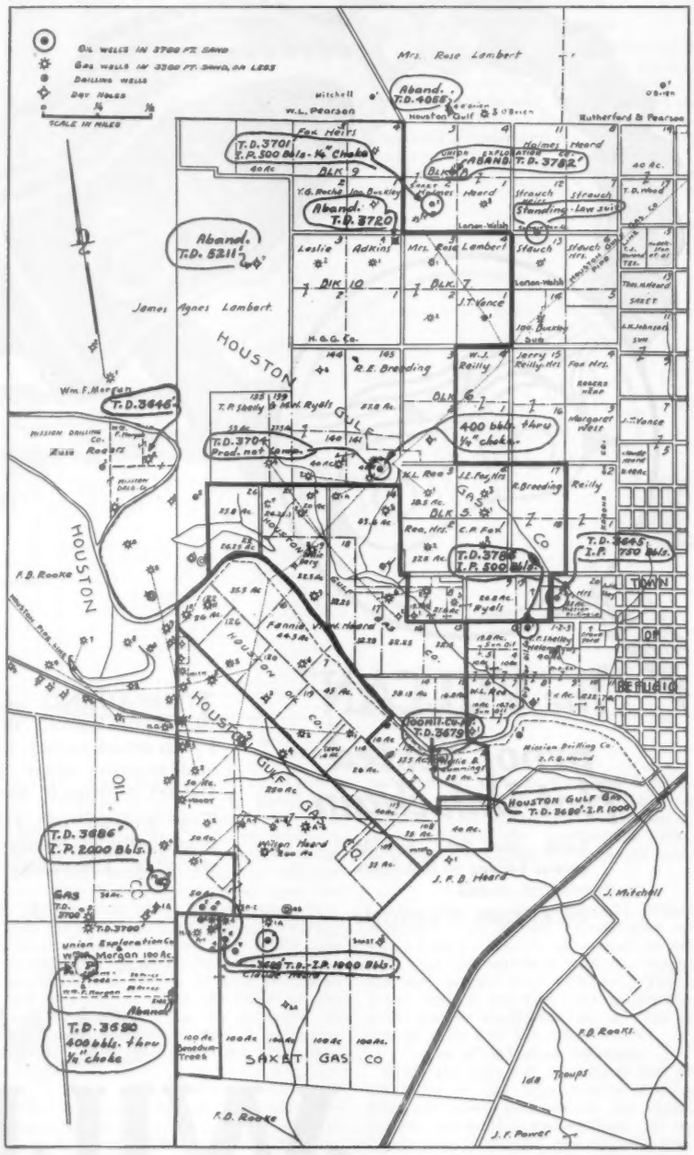
LARGE PROVEN AREA IN REFUGIO FIELD



SAN ANTONIO, Tex., May 25.—Fourteen oil wells producing from the 3,700-foot sand around the edge of the Refugio Field and one well in the same sand in the middle has proven an area 4 miles long and 1½ miles wide that needs only the drilling of additional wells to make it a major oil-producing pool.

Production in this area could easily be run to 50,000 bbls. and probably 100,000 bbls. daily. Wells come in with as much as 19 feet of sand and one big producer has an initial production of 2,000 bbls. daily.

Refugio is an old field, but all the production heretofore was gas from six to eight sands, the shallowest being at around 1,200 feet. The deepest of the gas sands is 3,300 feet and one well in it produced as much as 60 bbls. of oil a day. The next sand below 3,300 feet is the 3,700-foot oil sand, topped in the shallowest well at 3,645 feet, and the total depth of the deepest well in that sand is 3,704 feet. While most of the acreage is held by two major companies, the Houston Gulf Gas Co. and the Houston Oil Co., there is quite a lot of acreage held by individual owners.

There are 10 oil wells in the south end of the field, three on the east side and one on the north, and one gas well on the west side, which has proven up the 3,700-foot sand. Its total depth is 3,646 feet. The importance of this field is shown by a study of the map herewith. There is enough territory proven up for possibly 500 or 600 wells.

Location of the wells producing from the 3,700-foot sand are made conspicuous on the accompanying map by being enclosed in circles.

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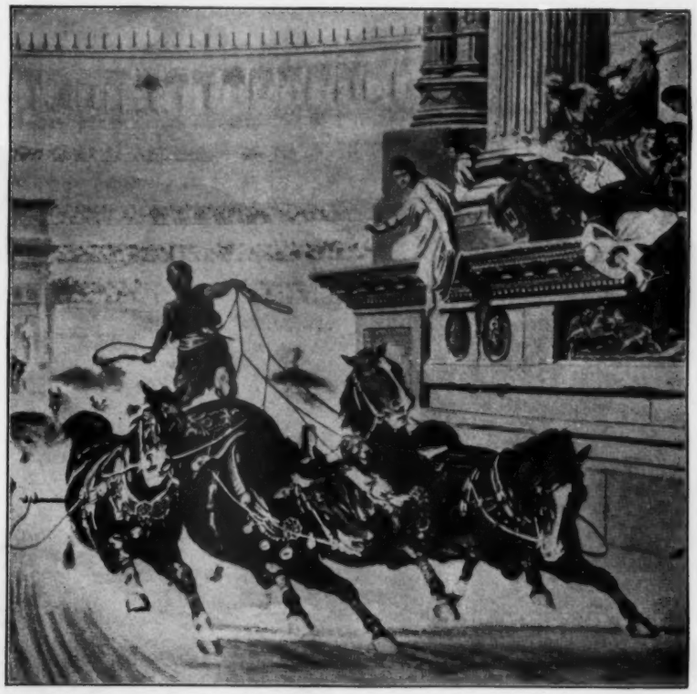

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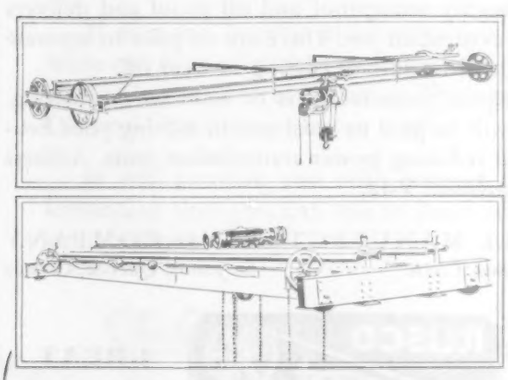

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RUSSIAN OIL TRUST ANNOUNCES NEW POLICY

(Continued from Page 34)

done by the various trusts (in thousand meters).

	1927-28 Programs	1927-28 Actual	1926-27
Azneft	258.0	262.1	255.2
Groznoft	83.0	74.7	104.8
Embaneft	14.1	13.1	12.0
Kubcherneft	12.0	11.7	8.7
Uzbekistan	2.7	1.7	3.5
Turkmenistan	1.7	0.3	0.4
	371.5	363.6	383.6

From the point of view of rationalization, the drilling technique shows further progress, which as formerly, is in favor of changing the rod and rope systems for the rotary system. On October 1, 1927, there were 212 rotary rigs in Baku in place of 166 on October 1, 1926; in Grosny there were 39 in place of 23 and at Emba there were three rigs, the first in that field.

	Exploitation drilling	Prospecting old fields	Prospecting new fields	Total
1928-1929	269,862	40,146	16,685	326,693
1929-1930	317,365	43,650	18,520	379,535
1930-1931	377,230	47,510	19,440	444,180
1931-1932	440,480	48,420	21,110	510,010
1932-1933	504,860	47,940	23,420	576,220
Total for five years	1,909,797	227,660	99,175	2,236,638

Refining Growth

The normal growth of refinery activities in the past year was hindered by insufficient output from the refineries. Driven to the maximum the refineries were unable to cope with the increased production from the fields and market demands for light products. This disproportion was particularly felt by "Azneft" where the quantity of unrefined oil gradually increased.

The quantity of crude oil refined is given below in thousands of metric tons:

	1927-1928	1926-1927
Azneft	5,278	4,018
Groznoft	3,182	2,740
Embaneft	229	208
Kubcherneft	91	49
	8,780	7,015

According to latest reports the pipe line between Grosny and Touapse is working satisfactorily and during the first two months of its operation, November and December, it had a throughput of 51,000 tons of oil.

A new gusher has been brought in on the old Balakhany Field in the Baku district with a yield during the first 24 hours of flow of 2,000 tons.

Small Oil Fields to Be Combined

The small individual oil fields not controlled by the state trust and controlled by local Soviets are now to be amalgamated and run as an all union trust to reduce losses in operations. Compensation on the transfer is to be paid to local authorities. All agreements made with the Kustars, the small producers, are to be taken over by the combine authority.

Sakhalin Oil Concessions

It is reported on good authority that since it is unable to work the oil fields in Sakhalin the Soviet government has transferred all its own fields to Japanese interests under a concession agreement.

In this connection it is interesting to state that after surveying the Sakhalin oil-bearing lands the Soviets divided the whole area into two sections. One was leased under a concession agreement to Japanese interests and, it has been reported, has been successfully worked by them. The other was earmarked for Soviet exploitation and a trust was formed on the same lines as the other oil trusts in Russia. A nominal capital was registered and some old equipment was sent from Baku, Emba, and Grosny.

Reports of successes were issued from time to time. Two commissions were sent from Moscow to Japan and the United States with a view to obtaining financial support. Several weeks ago it was reported that the commission in Japan had sold the whole output of oil obtained, and to be obtained, on the Soviet worked oil fields to Japanese importers and that large agreements were being negotiated with the Japanese government for deliveries of oil to the Japanese navy. Reports from America were also optimistic. Credits were said to have been obtained for equipment and light railways which were to be built in Sakhalin.

The truth of the case is that the commissions were not successful and the entire concession had to be turned over to the Japanese.

Egyptian Negotiations

The Near Eastern office of the Russian Naphtha Syndicate at Constantinople reports that it has received "serious inquiries" and is negotiating large sales of Soviet oil to Egypt. Special mention is made of gasoline in tins for which there is said to be a large demand. No names of the Egyptian buyers are given but it is hinted that they are important firms interested in the sale of Egyptian cotton to the Soviets.

Baku Oil Industry

Azneft has concluded a five-year plan for the oil industry. According to this plan drilling will be the most important factor and it is proposed to drill 2,236,638 meters as against 1,010,480 meters during the past five years. Details are given below:

Exploitation drilling will be divided among the various oil fields as below:

	Meters
Balakhany	204,535
Sabounchy	115,237
Romany	170,740
Surakhany	704,320
Bibi-Eibat	87,870
Bibi-Eibat Bay	305,320
Artem Island	82,560
Puta	76,455
Binagadi	162,260
	1,909,787

Prospecting drilling will be divided up as below:

	Meters
Balakhany	27,791
Sabounchy	18,838
Romany	20,997
Surakhany	33,330
Bibi-Eibat	19,465
Bibi-Eibat Bay	26,975
Artem Island	9,060
Puta	25,490
Binigadi	22,220
Karachkhan*	23,450

*Will enter exploitation from second year of five-year period.

Prospecting Work

Prospecting work will be carried out in practically 40 districts, not only in the Azerbaidjan Republic, but in Georgia and North Caucasus.

During the five years it is proposed to bring into exploitation 2,581 new wells located over Balakhany, Khorosan, Sabounchy, Romany, Surakhany, Bibi-Eibat, Bibi-Eibat Bay, Puta, Artem Island, Binagadi, and Shubnia, and to obtain an output of 49,241,000 tons against 28,685,000 tons obtained during the past five years.

The following table shows the proposed production year by year (in thousands of tons):

	Oil	Gas	Total
1928-1929	8,522	197	8,719
1929-1930	9,304	243	9,549
1930-1931	9,996	279	10,275
1931-1932	10,492	303	10,795
1932-1933	10,927	318	11,245
	49,241	1,342	50,583

Increased Throughput

As regards refining, it is proposed to use over 40,000,000 tons of crude against 18,262,000 tons for the past five years, as follows:

	Baku	Batoum	Total
1928-1929	6,225	327	6,553
1929-1930	6,225	1,639	7,864
1930-1931	6,225	3,459	9,684
1931-1932	6,225	3,524	9,749
1932-1933	6,225	4,098	10,323
	31,125	12,047	43,127

As will be seen the increase will be from the Batoum refineries, whereas the Baku refineries will work at the same level. As a result it is proposed, during the period, to repair the Baku refineries, but of new erections only those where absolutely necessary, in the first place, for changing obsolete apparatus, and secondly, for purposes of rationalization.

All new building will be concentrated in Batoum, where the first kerosene refinery, with an output of 820,000 tons

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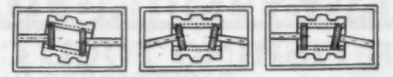

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per annum, will enter exploitation in 1928-29. A kerosene-lubricant refinery with an output of 1,640,000 tons must be completed by April, 1930. A second kerosene refinery, with an output of 1,640,000 tons per annum, will be completed by January, 1932.

It is proposed to erect 19 "cracking" plants at Batoum by the beginning of 1932-33, each plant to have an output of 82,000 tons.

Pipe Line Construction

Pipe line construction falls into three categories.

1. Finish the first 10-inch pipe line.
2. Turn the 8-inch kerosene line into an oil line (crude).
3. Construct second 10-inch pipe line.

The first 10-inch pipe line will be finished during 1928-29. During this same period work will be started on the 8-inch kerosene line; this should be completed during the second year. April, 1930, will see the commencement of work on a second 10-inch pipe line, the construction of which should be finished by October 1, 1931.

The five years' plans provide for a capital expenditure of 683,633,000 Rs. for the oil industry, and 59,600,000 Rs. for opening of new areas, a total of 743,233,000 Rs., which has been reduced by the higher authorities to 697,100,000 Rs. This reduction chiefly concerns the building of dwellings, 36,926,000 Rs. Drilling expenses are decreased by 10,000,000 Rs.; construction of refineries by 7,000,000 Rs., technical safeguards by 3,000,000 Rs. and other items by 12,000,000 Rs.

The report states: "In working out the five-year plans Azneft has taken extremely optimistic views, as for instance, maximum number of wells to be drilled on the oil fields, increased rate of drilling, maximum commencing output of new wells and minimum percentage in the fall of production from old wells, etc. In consequence the reduction in capital expenditure will have no effect upon the fulfilling of the five-year plans and the further opening up of the oil industry."

KENTUCKY-TENNESSEE

(Continued from Page 58)

1 on the Matt Statler in the Bells Run area, northwest of the Ambrose Pool.

Buckner-Larue Oil Co.'s No. 3 Will H. Haines farm, in the Deanfield area, is reported good for 20 bbls. at around 600 feet. C.C.C. Oil Co.'s No. 6 on the W. Whittaker farm, north of Bells Run, is showing for 40 bbls. Same company's No. 4 on the Mitchell-Berkhead, in the Bells Run Pool, shows for 35 bbls. H. A. Henry's No. 3 on the Nora Chambers 85 acres is showing for a 15-bbl. pumper at 692 feet.

S. H. Russell and others' second well on the H. C. Greer 185 acres, in the Deanfield area, is good for 30 bbls. In this well a string of 397 feet of casing was set, pay sand from 411 to 443 feet and shot with 100 quarts. No. 3 on the same lease had a string of 397 feet of casing set, sand from 438 to 443 feet and shot with 120 quarts, resulting in an initial of 50 bbls.

McLean County Duster

The Leeper Oil Co.'s test on the John Wiggington farm, 4 miles south of Utica, and in McLean County, developed a real duster.

The Ohio Oil Co. is due to complete its second test on the George McManma farm, 4 miles south of Calhoun, in McLean County. No. 1 on this farm is a fair pumper. McMahan and Combs are drilling No. 5 on the Hancock Development Co.'s 3,000-acre block of leases in the Pellville Field of Hancock County.

Owensboro parties are drilling on the E. H. Shelton farm, south of the Hayden Pool, in Daviess County. Leeper Oil Co. is drilling No. 6 on the W. L. Barnett 50 acres in Daviess County, near the old development in the extreme eastern part of the county. S. N. Harreld and others of Louisville are drilling on the N. J. Cook lease, between Jones and Burton Pools, in Daviess County. Cumberland Petroleum Co. is drilling No. 1 Jackson in the Friendship Chapel area of Daviess County. Huff & Calderwood are drilling No. 7 Bell Salmon and No. 1 McCandless, both in the Salmon Pool.

The Ohio Oil Co. is due to bring in its No. 5 on the John A. Kirk 141 acres, in the Bartlett Pool of Ohio County, where it recently brought in the largest well found in Kentucky in the past 10 years. H. L. Ogle and others are drilling No. 2 on the W. Kellem 51½ acres, same county.

In the Gainesville Field in northeastern Allen County, Snowden-McSweeney Co. is drilling No. 36 T. Y. Oliver farm; Tracy Supply Co. is drilling No. 10 Jennie Horrison lease; E. D. Defenbaugh is drilling No. 4 L. Beam lease; Pearson and Stein is drilling No. 10 I. S. Stovall, and the Allen Corp. is drilling No. 11 A. Welch No. 2 farm, all in the Gainesville area.

Ray Young and others are drilling on the George W. Wilson farm, on the Carter Road, about 2½ miles southwest of Owensboro. This well, with its nearness to Owensboro, will be watched with much interest.

W. J. Hinchy, C. S. Shippey and Russell Hastings, of the Missouri-Kansas Pipe Line Co., have returned to Owensboro from a trip to St. Louis and Kansas City. The Missouri-Kansas Pipe Line Co. is drilling a test well for gas on the Whitley farm, near Owensboro, but found water in the Jett sand and is going down to the Barlow sand.

The Red Bank Gas Co. at last reports was down to 1,525 feet on the Jack Moseley farm in Daviess County.

CENTRAL WEST FIELDS

(Continued from Page 58)

in Lot 2. Berea was tapped at 1,221 feet, water found at 1,241 feet, total depth 1,245 feet. George Jewell and others are drilling on the Thomas E. Henderson, Section 28, Millwood Township.

Morgan County

In Morgan County, Penn Township, Smith and Dunn's No. 20 on the Laura B. Riley, Section 11, is a light gas well in the lower Berea sand at from 1,547-72 feet, total depth 1,575 feet. Henning Brothers are drilling No. 21 on the C. J. Kennard, Section 2. In Malta Township, the Ohio Fuel Gas Co. has an average gas well in No. 1-3,482 on the James W. Davis, Section 26, in the lower Berea at from 1,602-27 feet, total depth 1,630 feet.

In Meigs County, Sutton Township, the Penn Berea Oil Co.'s No. 3 Hanna Capehart, Section 30, is reported good for 2 bbls. from the upper Berea sand at from 1,690 to 1,709 feet, total depth 1,710 feet. Tyree and others' second test on the William H. Lott, Section 24, same township, is estimated good for 6 bbls. initial.

In Medina County, Chatham Township, the Oko Oil & Gas Co. of Lima, Ohio, drilled a dry hole in No. 22 on the T. W. Brimmer farm, Section 16.

The best oil completion in the Central Ohio area was the Emerald Petroleum Co.'s No. 3 on the John A. Little farm, Section 8, Fallsburg Township, Licking County, with an initial of 100 bbls.

J. M. Williamson and others' No. 4 on the L. and C. O. Williamson farm, Section 2, Congress Township, Wayne County, developed into a duster.

The Ohio Fuel Gas Co.'s test on the Harry M. Rine farm, Section 4, Pike Township, Coshoction County, is rated good for 25 bbls.

INDIANA

Another dry hole has been added to the Spencer County development in southern Indiana across the Ohio River from Owensboro. Sharp Randall drilled a test in the NW cor. of the Raymond Bretz farm, in the SE of Section 3, Ohio Township, at a depth of 1,297 feet. The test drilled by R. W. McMahan and others in the SW cor. of the Terrell Weatherhold farm, near Gentryville, an offset to the Rocky Hill well, in Ohio Township, has been given up as a dry hole after going to a total depth of 1,442 feet. No. reports have been received from test being drilled by E. M. Treat Co. on the George Cissna farm, nor the Libb and others' test on the William Arnold, Section 17, Huff Township. The Packard

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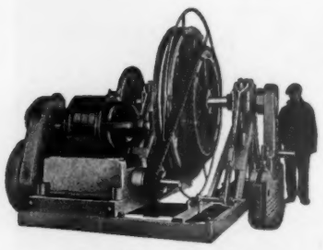

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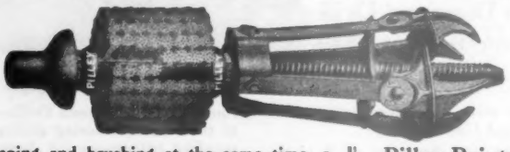

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Oil Co.'s No. 4 on the Ray farm is reported to show for a 10-bbl. pumper and is in Section 11, Huff Township. This company's No. 3 L. Carlton farm, Section 10, same township, is dry at 477 feet. No completions are reported from the Tell City Field of Perry County, which adjourns Spencer County to the east and where several wells are under way and new ones getting ready to start.

In Turman Township, Sullivan County, in the western part of Indiana, Burns and others' test, 150 feet from the north line and 600 from the west line of the J. W. Watson farm, in the NE SW Section 36, developed into a dry hole at a depth of 825 feet.

ILLINOIS

The finding of a very shallow well in Dennison Township, Lawrence County, in a stray sand, a heretofore unknown formation, comes as quite a surprise. This well was drilled by John Phipps and others and is No. 6, 920 feet from the north line and 200 from the east line of the Wesley Clark farm, in the SW of Section 2. The oil was found at from 432-48 feet and drilled to a total depth of 493 feet, and shot with 40 quarts produced an initial of 300 bbls. the first 24 hours.

In the Allendale Field, Wabash Township, Wabash County, the Highland Oil & Gas Co.'s test in the NE cor. of the L. G. Loeffler, in the SW Section 5, pumped 24 bbls. initial at from 1,537-62 feet.

Other surprises come from the western part of Illinois, where some remarkable finds are being made in St. Clair County, where the St. Clair County Oil Co.'s second test in the NW cor. of the Hall and Weihl farm, Lot 39, Sugar Loaf Township, produced an initial of 250 bbls. from 482 to 538 feet. The Ohio Oil Co.'s second test, 600 feet from the south line and 300 from the east line of the G. L. Tarlton farm, in the SE of Section 28, same township, produced an initial of 240 bbls. at from 590 to 644 feet. Morris and Yeager's test in the NW cor. of the Margaret LaCroix farm, Lot 40, produced 40 bbls. initial at from 470 to 510 feet. In the same township, Pierce, Cox and others found a dry hole in the SW cor. of the Henry Osick farm, in the SW of Section 22, at from 890 to 920 feet.

EASTERN FIELDS

(Continued from Page 62)

gers farm. In Duval district, Lincoln County, C. C. Wolfe is building a rig on the Ned Davis heirs' farm. In Geary district, Roane County, the United Fuel Gas Co. has started to drill on the S. A. Hill farm.

On Little Creek, Spencer district, Roane County, Crow & Decker have started to drill on the A. C. Kendall farm. In Union district, Tyler County, Hess and others have started to drill a second test on the Homer Hess farm. In Grant district, Ritchie County, B. C. Deem is due in the Maxon sand on the Samuel Hatfield farm. In the same district, the Vienna Oil Co. has started to drill on the Daniel Wilson farm. In the same district, Rexroad & Co. are drilling at 1,000 feet on the G. B. Rosson farm. In Williams district, Wood County, Ekas & Co. are due in the sand on the Francis DeLaney farm. In the same district, Carmichael & Britton have started to drill on the J. E. Fleming farm. Athey & Stewart started to drill on the A. C. Athey farm.

Spencer and Wirt Counties

In Spencer district, Roane County, the Federal Oil & Gas Co. has made a location on the E. W. Cain farm. In Spring Creek district, Wirt County, the same company is drilling two wells on the Provident Mining Co.'s property. In Troy district, Gilmer County, Bennett & Co. are due in the Big Injun sand on the Allen Burton farm. In Freemans Creek district, Lewis County, the Pittsburgh & West Virginia Gas Co. is hauling rig material to a location on the J. C. Teter farm.

In Paw Paw district, Marion County, the Owens Bottle & Machine Co. is drilling on the Minnie Wilson farm. In Spencer district, Roane County, Grow

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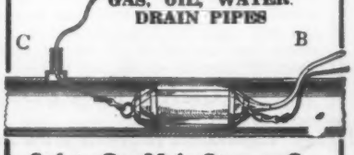

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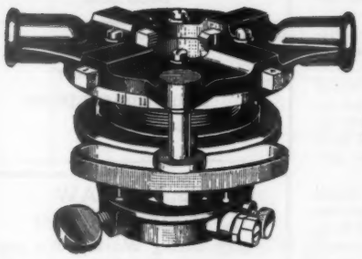

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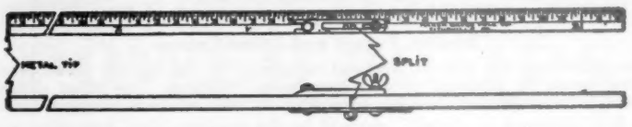

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AN EXPERIENCED OIL FIELD ORGANIZATION

& Decker have started to drill on the C. A. Kendall farm. In Lee district, Calhoun County, the United Carbon Co. has rig material at a location on the Laura Hall farm. In the same district, F. F. McIntosh is building a rig on the Mary E. Hall farm and rigging up on the John Riddle farm. In Clay district, Wetzel County, the Littleton Oil & Gas Co. is rigging up on the Meighen Dennis farm.

Southwest Pennsylvania

In Morris Township, Greene County, Sutton & Mong and others have completed No. 4 on the Adam Phillips farm. It is a gasser in the Speechley sand.

In North Strabane Township, Washington County, E. H. Tague & Co. have completed in Fifth sand a test on the J. M. Pollock farm. It is a duster at a total depth of 2,735 feet.

At Glenfield, Allegheny County, Purdy Brothers' test on the Knoder farm has struck a streak of hard luck. The first hole was plugged with two strings of tools and they moved the rig and started a new hole. Now the second test has been plugged and they are fishing for a string of tools.

In the same locality, Swain Brothers have a very light pumper on the J. B. Leeper farm. At Dixmont, F. P. Martin has a fair Third sand gasser on the Schneider farm. Both are in Allegheny County.

For 24 hours the Manufacturers Light & Heat Co.'s No. 5 on the Day farm, in Morris Township, Washington County, Pennsylvania, produced 130 bbls. No. 6 on the same farm is drilling.

PRORATION COMMITTEE NAMED IN MICHIGAN

MUSKEGON, Mich., May 25.—Five producers in the Muskegon, Mich., Field have been elected as an executive council for proration of the oil output: Oscar Davis of the Johnson Oil Refining Co.; T. M. Simpson, Continental Motors; Charles W. Marsh; E. B. Dake, Paragon Oil Co., and J. J. Fagan, Double Shot and Section Ten oil companies. One of the first duties of the council will be to select a petroleum engineer acquainted with the field to meet with two experts from southwestern oil states to make a survey to determine what percentage of potential open flow of the Muskegon Dundee wells will be best. The experts are to be chosen by the state conservation department.

Other duties of the council are outlined in the provisions adopted at a previous meeting of the producers:

That the field be prorated somewhere between 25 and 40 per cent of the potential for 30 days; that another potential be taken and meeting held after 20 days from date of first run to determine proration for next 30 days.

That proration be based on an equal basis on production ratio and acreage ratio. That the minimum production from any well prorated be 100 bbls. Any wells brought in during the first 30 days proration may produce 100 bbls.

That the executive committee, after securing signatures of about three-fourths of the producers, call on the state government and request that an umpire be appointed with state powers to execute these wishes of a majority of the producers. That this action of producers is taken in order to preserve the natural resources of the State, to avoid wastage and secure the greatest amount of ultimate recovery of crude.

The meetings were held under the auspices of the Michigan Oil & Gas Association.

CHAPIN BUYS WILSON CO.

CHICAGO, May 25.—Charles F. Chapin, until May 1, manager of the Minneapolis division, Marland Refining Co., has taken over the Wilson Oil Co., of 1147 N. Central Park Ave. Incorporation papers as the Wilson Oil Co. have been taken out.

The capital stock is $10,000 and the company is licensed to deal in petroleum products and to do a general garage and automobile business. The incorporators are Charles E., and J. J. Chapin and John S. Hall.

Read the Classified Wants Pages 140-141

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This letter from a subscriber reflects the general attitude of readers of The Oil and Gas Journal, its value for reference as well as for the news of the moment:

TROPICAL OIL COMPANY
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Apartado 170, Cartagena, Colombia
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The Oil and Gas Journal,
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Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS

Pipe Line Statement for March Runs

Company—	Month bbls.	Dly.av. bbls.
Prairie P. L. Co.	4,619,000	149,000
Gulf P. L. Co.	1,714,368	55,302
Texas P. L. Co.	922,337	29,753
Magnolia P. L. Co.	2,196,587	70,858
Empire P. L. Co.	1,106,721	35,701
Cosden P. L. Co.	757,044	24,421
Sinclair P. L. Co.	3,162,000	102,000
Oklahoma P. L. Co.	3,043,998	98,193
Other lines*	6,262,000	202,000
Total March	23,784,055	767,228
Total February	22,978,583	820,663
Difference	805,472	53,453
Shipments		
Prairie P. L. Co.†	5,330,544	189,695
Gulf P. L. Co.	1,681,189	54,232
Texas P. L. Co.	1,116,490	36,016
Magnolia P. L. Co.	2,218,572	71,567
Empire P. L. Co.	1,449,926	46,772
Cosden P. L. Co.	896,505	28,920
Sinclair P. L. Co.*	3,217,416	103,788
Oklahoma P. L. Co.	3,132,387	101,045
Other lines*	6,262,000	202,000
Total March	25,855,029	834,035
Total February	23,350,972	833,964
Difference	2,504,057	71
Stocks		Bbls.
Prairie O. & G. Co.*		37,682,000
Gulf P. L. and Gypsy Oil Cos.		9,622,235
The Texas Company		8,349,987
Magnolia Pet. Co.		9,887,778
Empire P. L. Co.		4,148,034
Mid-Continent Pet. Corp.		3,439,639
Sinclair Crude Oil Purch. Co.*		20,572,000
Carter Oil Co.		12,450,683
Oklahoma P. L. Co.		3,263,858
Other lines*		11,775,000
Total March		121,191,264
Total February		119,111,780
Difference (see note)		2,079,484

*Estimated. †Prairie P. L. and Sinclair P. L. shipments include Texas crude oil.

Note—Prairie Oil & Gas Co. by purchase from T. B. Slick added 2,600,000 bbls. to its stocks.

Note—Stocks do not include approximately 5,300,000 bbls. of crude oil held in storage on private tank farms and leases.

EASTERN PIPE LINE REPORT

Runs from Wells

In the following table will be found the regular receipts for wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for March and April:

	Mar., 1929	Apr., 1929
Nat. Transit	181,078.06	220,177.96
S. W. Pa. P. L.	102,780.57	96,471.45
Eureka P. L.	361,950.53	361,294.32
Buckeye P. L. (Macksb'g)	328,651.40	335,779.62
Buckeye P. L. (Cleve.)	11,850.63	12,265.09
Buckeye P. L. (Lima, etc.)	106,736.48	103,296.03
Indiana P. L.	5,695.98	5,130.73
Cum'land P. L.	188,917.24	203,144.51
N. Y. Transit	30,819.36	31,202.58
Tidewater P. L.	216,180.03	233,576.47
Pure Oil	60,961.13	60,020.89
Emery P. L.	64,675.89	65,713.91
Paragon Dev.	14,880.20	18,255.49
Stoll Oil Ref.	6,722.77	6,979.37
Total	1,681,800.27	1,753,308.42
Daily average	54,251.62	58,443.61

Note—Indian Refining Co. also reported other receipts of 228,673.37 bbls. Paragon Refining Co. had other receipts of 185,079.68 bbls. Paragon Development had other receipts of 390.90 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky for March and April:

	Mar., 1929	Apr., 1929
Nat. Transit	472,740.05	459,812.50
S. W. Pa. P. L.	324,198.08	363,716.29
Eureka P. L.	227,945.27	248,843.98
Buckeye P. L. (Macksb'g)	178,851.61	191,498.74
Buckeye P. L. (Cleve.)	2,675.09	1,941.40
Buckeye P. L. (Lima, etc.)	1,398,450.19	1,323,167.62
Indiana P. L.	1,426,742.83	1,380,184.34
Cum'land P. L.	202,271.56	184,506.68
Southern P. L.	.....	71,454.97
N. Y. Transit	207,577.62	186,779.49
Northern P. L.	185,794.76	179,598.23
Tidewater P. L.	154,430.49	179,487.31
Pure Oil	68,193.52	57,602.63
Emery P. L.	62,136.95	63,977.39
Paragon Ref.	176,375.05	185,079.68
Paragon Dev.	17,320.04	14,456.13
Total	5,005,703.11	5,092,107.38
Daily average	161,474.29	169,736.91

Indian Refining Co. reported other deliveries of 273,471.85 bbls.

Gross Stocks

The gross stocks held by various pipe lines in the oil producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of March and April:

	Mar., 1929	Apr., 1929
Nat. Transit	731,188.54	716,361.68
S. W. Pa. P. L.	430,880.16	423,480.13
Eureka P. L.	1,227,449.21	1,305,585.15
Buckeye P. L. (Macksb'g)	496,081.38	517,342.15
Buckeye P. L. (Cleve.)	53,245.56	36,739.70
Buckeye P. L. (Lima, etc.)	2,015,652.51	1,977,236.44
Indiana P. L.	517,499.27	541,456.22
Cum'land P. L.	568,233.96	589,250.22
Southern P. L.	538,367.15	472,810.29
N. Y. Transit	283,675.14	319,023.52
Northern P. L.	377,796.87	384,395.22
Tidewater P. L.	1,369,220.70	1,317,878.72
Pure Oil	8,038.47	11,307.22
Emery P. L.	12,036.26	14,291.05
Paragon Ref.	18,740.25	18,502.92
Indiana Ref.	52,393.15	68,506.50
Paragon Dev.	4,622.34	8,966.70
Tuscarora	296,936.59	255,038.02
Total	9,002,057.51	8,978,171.85
Increase	263,222.55	.....
Decrease	.....	23,885.66

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of March and April showing the gross stocks of the above fields:

	Mar., 1929	Apr., 1929
Pennsylvania	3,316,864.74	3,399,836.77
Lima	578,882.26	567,347.94
Kentucky	742,122.61	781,911.36
Mid-Continent	4,038,082.57	3,956,708.61
Illinois	327,105.33	282,367.17
Total	9,002,057.51	8,978,171.85

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1926	1927	1928	1929
Jan.	55,630	56,209	52,904	51,749
Feb.	60,394	61,298	57,002	51,833
Mar.	61,644	63,247	57,485	54,252
April	63,019	60,927	56,812	58,444
May	60,580	60,284	62,067	.....
June	61,121	62,757	58,230	.....
July	63,206	58,674	57,144	.....
Aug.	61,815	60,870	57,745	.....
Sept.	64,639	60,285	53,487	.....
Oct.	161,132	147,080	58,100	.....
Nov.	67,774	57,275	53,565	.....
Dec.	58,755	53,089	52,035	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1926	1927	1928	1929
Jan.	156,056	141,227	146,465	165,721
Feb.	159,488	138,534	167,368	159,387
Mar.	150,239	133,777	158,883	161,474
April	152,374	140,237	172,935	169,737
May	160,998	144,594	180,559	.....
June	160,257	149,772	188,024	.....
July	160,045	151,850	189,470	.....
Aug.	151,929	188,653	192,853	.....
Sept.	158,915	144,213	194,138	.....
Oct.	161,132	147,036	176,000	.....
Nov.	172,608	150,975	176,898	.....
Dec.	136,428	144,504	173,572	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1927	1928	1929
Jan.	9,718,008	12,276,710	7,596,564
Feb.	10,119,162	12,180,419	8,738,835
Mar.	10,794,044	12,239,725	9,002,058
April	11,112,295	11,740,125	8,978,172
May	11,359,381	11,602,468	.....
June	11,493,673	11,287,678	.....
July	11,458,128	10,819,331	.....
Aug.	11,989,115	10,236,743	.....
Sept.	12,212,716	9,660,910	.....
Oct.	12,047,661	9,229,709	.....
Nov.	11,939,740	8,366,553	.....
Dec.	12,340,297	7,539,555	.....

Franklin Pipe Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and not counted in the stocks and averages reported above:

1928—	Runs	Shipments	Stocks
June	3,153.08	2,779.02	17,922.58
July	2,902.50	3,628.02	17,197.06
August	2,874.11	2,350.13	17,721.04
September	2,820.31	6,256.42	15,285.93
October	1,289.93	535.89	17,551.93
November	2,663.53	788.47	19,426.99
December	3,053.60	3,167.53	19,426.99
1929—			
January	2,099.90	.....	19,313.06
February	2,469.47	6,873.20	17,009.23
March	3,330.82	3,595.01	16,745.04

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, May 1	2,377,792.51
Runs from wells	488,775.24
Other receipts	496,648.12
Regular deliveries	600,225.37
Other deliveries	383,669.25

The amount of Illinois oil run by the Tidewater Pipe Line Co. in April was 26,599.03 bbls. Deliveries were 54,072.59 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

1928—	Runs	Deliveries
May	632,968.64	552,980.51
June	608,552.49	625,087.33
July	612,286.49	565,678.37
August	639,074.85	671,864.02
September	570,307.91	737,293.50
October	626,147.64	626,290.40
November	576,332.88	702,589.93
December	584,663.00	491,517.26
1929—		
January	570,727.38	545,084.66
February	517,330.17	503,387.70
March	728,319.67	586,049.60
April	515,374.27	654,297.96

Tide Water Pipe Line Co., Ltd., also delivered in April 158,893.01 bbls. Oklahoma oil.

AVERAGE DAILY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF COAST PORTS

Average bbls. per day—	ATLANTIC PORTS Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total all ports
October	17,323	.....	11,307	6,483	....	.....	.....	.....	.....	.....	.....	35,612
November	21,333	5,200	25,400	13,200	7,100	77,233	..	..	..	....	1,000	78,233
December	4,968	2,968	24,678	13,806	8,064	54,484	.. ..	.....	.....	..	2,419	56,903
January	15,838	.....	16,676	11,838	7,938	52,290	..	.....	.....	.....	5,161	57,451
February	14,214	.....	38,750	17,250	11,607	81,821	.....	.. ..	.....	....	3,750	85,571
March	19,903	968	31,258	18,581	7,355	78,065	.....	.....	.....	.....	.....	78,065

AVERAGE DAILY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

Average bbls. per day—	ATLANTIC PORTS Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total all ports
October	26,161	16,839	128,452	27,710	7,098	206,258	.....	32,226	3,065	1,612	36,903	237,161
November	18,400	16,033	132,700	30,267	8,433	206,833	1,333	37,167	4,633	..	43,133	249,966
December	15,419	15,968	140,871	42,323	8,709	223,290	2,903	35,129	2,355	.....	40,387	263,677
January	11,936	3,903	130,065	34,871	15,709	201,484	.. ..	34,808	4,098	1,287	40,193	241,677
February	13,750	15,071	135,179	32,750	17,893	214,643	.. ..	34,357	821	143	35,321	249,964
March	18,548	26,064	145,516	39,162	28,163	257,452	.....	42,581	2,322	.....	44,903	302,355

GROSS PRODUCTION IN UNITED STATES FOR 12 MONTHS

(In barrels of 42 gallons)

1928—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mts.	Eastern	Total
April:	Month	18,280,729	19,096,920	21,876,913	3,412,380	2,472,600	1,912,187	2,270,810	3,231,000	72,653,419
	Daily average	609,357	636,564	729,230	113,742	82,420	63,740	79,027	107,700	2,421,784
May:	Month	19,231,866	19,443,255	21,220,046	3,367,309	2,842,847	1,926,026	2,525,043	3,619,000	74,276,993
	Daily average	623,609	627,205	684,518	108,639	91,727	62,130	81,447	116,742	2,396,032
June:	Month	19,164,244	18,482,981	19,877,936	3,302,050	3,075,911	2,074,422	2,425,470	3,401,000	71,704,014
	Daily average	638,808	616,099	662,598	106,735	102,530	69,147	80,849	113,367	2,390,134
July:	Month	19,754,458	18,809,188	22,055,727	3,171,542	2,792,139	2,238,090	2,492,586	3,487,000	74,800,746
	Daily average	637,241	606,748	711,475	102,308	90,069	72,131	80,406	112,484	2,412,927
August:	Month	19,444,899	20,840,804	22,339,131	3,147,058	2,711,787	1,989,264	2,561,840	3,556,000	76,590,783
	Daily average	627,255	672,284	720,448	101,518	87,477	64,170	82,640	114,709	2,470,670
September:	Month	18,908,169	22,456,860	21,554,269	3,047,250	2,540,070	1,830,225	2,432,430	3,229,000	75,998,273
	Daily average	630,272	748,562	718,207	101,575	84,669	61,007	81,047	104,300	2,533,279
October:	Month	19,430,992	23,431,071	22,176,853	3,058,460	2,653,484	1,836,221	2,571,822	3,612,000	78,769,903
	Daily average	626,806	755,841	715,376	98,660	85,564	59,233	82,962	116,516	2,540,964
November:	Month	19,907,526	22,078,680	20,791,798	2,977,800	2,476,080	1,801,914	2,388,870	3,348,000	75,770,668
	Daily average	663,584	735,956	693,059	99,260	82,536	60,064	79,629	111,600	2,505,689
December:	Month	21,674,703	23,425,732	23,180,102	2,988,400	2,521,571	1,846,841	2,239,040	3,581,000	79,407,379
	Daily average	695,958	723,410	716,487	96,400	81,341	59,576	72,240	115,516	2,561,528
1929—										
January:	Month	23,335,939	22,417,030	23,412,192	2,861,641	2,453,526	1,807,887	2,076,070	3,379,000	81,793,285
	Daily average	754,385	723,130	755,232	92,311	79,146	58,313	66,970	109,000	2,638,493
February:	Month	22,300,707	20,448,764	20,816,209	2,557,968	2,154,194	1,569,930	1,965,656	3,122,000	74,935,428
	Daily average	796,454	730,313	743,434	91,356	76,936	56,068	70,202	111,500	2,676,265
March:	Month	24,234,729	20,838,262	24,358,592	2,951,076	2,341,734	1,756,153	2,195,823	3,503,000	82,169,369
	Daily average	784,669	672,202	784,669	95,196	75,314	56,650	70,833	113,000	2,650,633
	Total 12 months	245,808,961	250,769,627	262,659,778	36,743,320	30,935,945	22,589,160	28,396,460	41,068,000	918,870,261

4 FEATURES OF GASO PUMP, FIG. 1508

1 Main and Pinion Shaft bearings are Timken Tapered Roller Bearings.

2 Main and Pinion Gears of continuous tooth Herringbone construction.

3 H-column Connecting Rod, with babbitt-lined, removable bronze shell at crank end.

4 Pump is fully enclosed, dust-proof, and entirely self lubricated.

Gears Run on Massive TIMKEN BEARINGS

A factor in the outstanding efficiency and durability of Gaso Fig. 1508 Pump is the Timken Tapered Roller Bearing equipment on both main and pinion gears.

In this pump, friction and wear have been reduced to the minimum. Users are obtaining notable service as a result. Ask for complete information.

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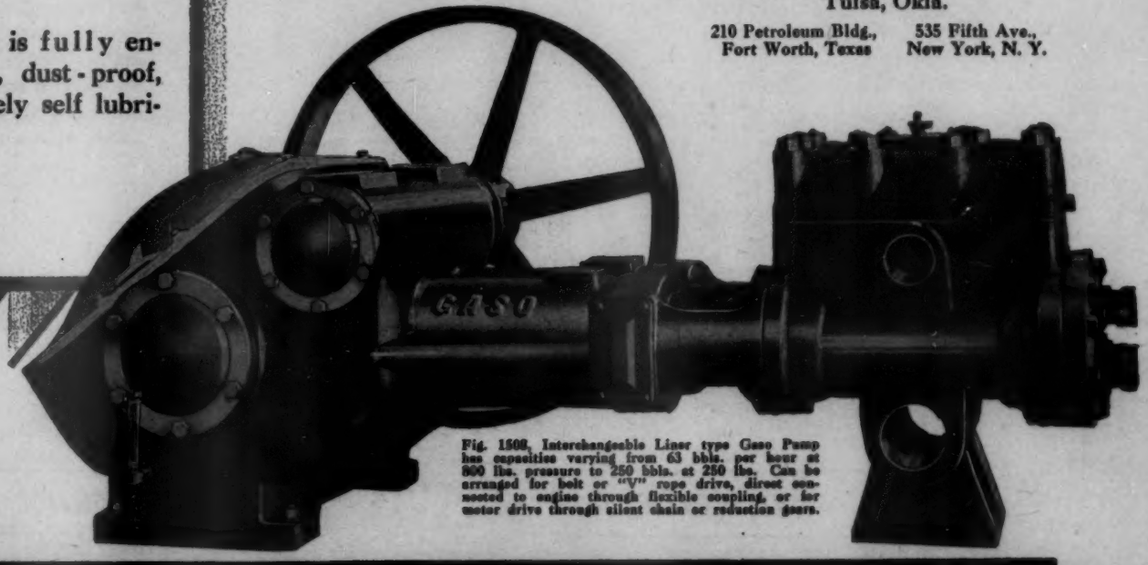

Fig. 1508, Interchangeable Liner type Gaso Pump has capacities varying from 63 bbls. per hour at 500 lbs. pressure to 250 bbls. at 250 lbs. Can be arranged for belt or "V" rope drive, direct connected to engine through flexible coupling, or for motor drive through silent chain or reduction gears.

GASO PUMPS

for every oil industry need

The most productive acreage in the World

Several shallow wells were drilled in Spindle Top field in 1893, but the real discovery well was drilled by Captain Anthony F. Lucas, Jan. 10, 1901. The well was completed at 1139 feet and production was estimated at from 75,000 to 125,000 barrels per day.

The peak of shallow production was reached in 1902 when a total of 17,500,000 barrels of oil was recovered.

Late in November, 1925, the Yount-Lee Oil Company discovered a deep pay sand, ushering in a second boom for this great field, production reaching 100,000 barrels daily at the close of 1926.

It is estimated that more than 100,000,000 barrels of oil has been recovered at Spindle Top, and the total area comprising the field is a little less than 375 acres.

Comparison of the equipment, tools and methods used when Captain Lucas completed the first well in this field with that used since the Yount-Lee Oil Company found the deeper sand will emphasize the great advancement made during the past quarter century.

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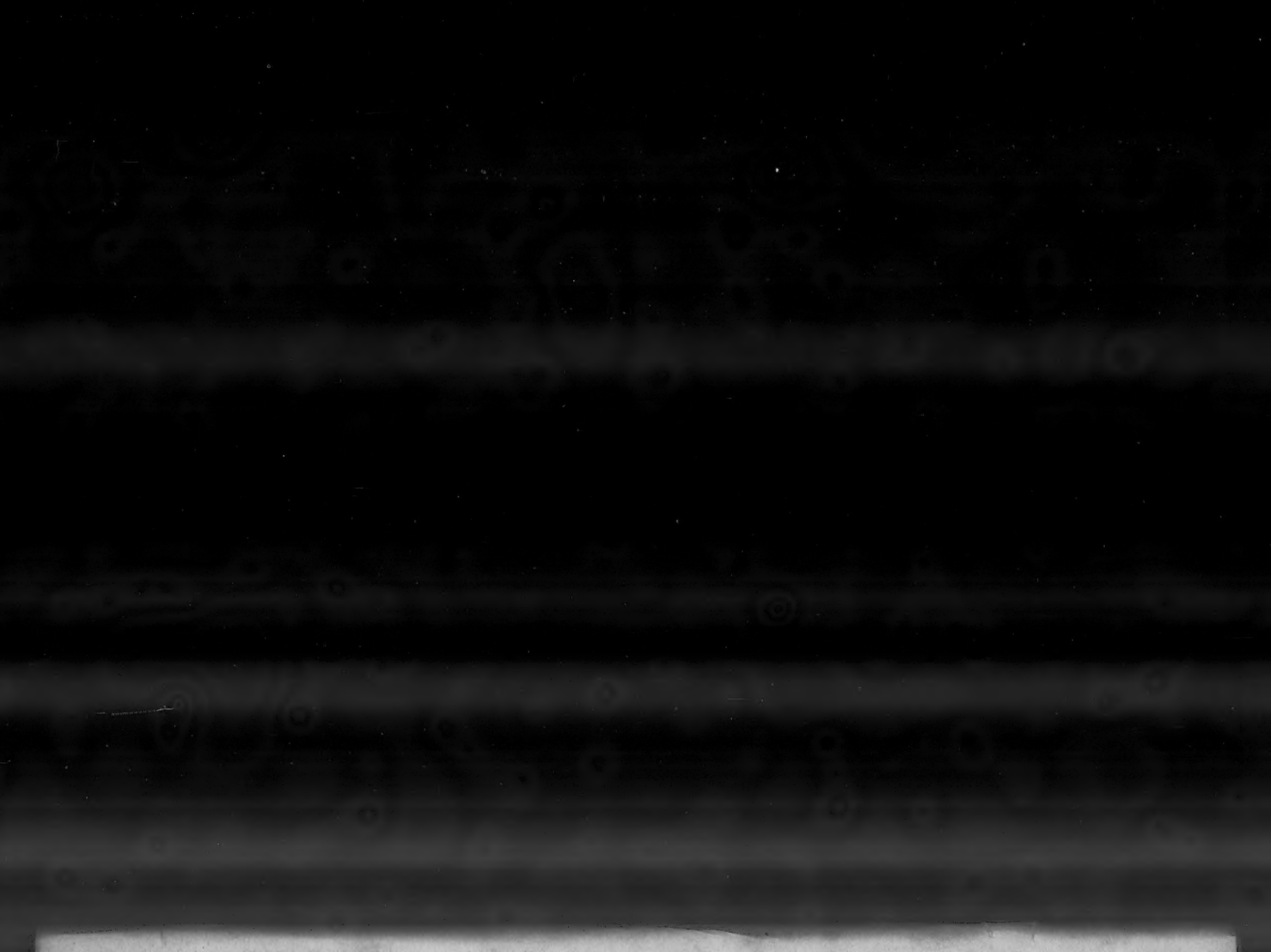
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